European Wilderness Quality Standard Audit

КАРПАТСЬКИЙ БІОСФЕРНИЙ ЗАПОВІДНИК

EUROPEAN WILDERNESS SOCIETY

2016

Let's get Wild!

European Wilderness Quality Standard Audit

Published by:
European Wilderness Society, Austria, 2018

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Maps:
Includes maps of the Carpathian Biosphere Reserve and Uholka-Shyrokyy Luh Wilderness

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Print, layout and design:
Die Medienwerkstatt GmbH, Austria

WILDERNESS CERTIFICATE

The European Wilderness Society certifies that the

UHOLKA-SHYROKYY LUH WILDERNESS

UKRAINE

with 7 117 ha is part of the Carpathian Biosphere Reserve, complying with the PLATINUM European Wilderness Quality Standard and registered in the European Wilderness Network

valid until 01.10.2027

Max A.E. Rossberg
Chairman

Vlado Vančura
Director Wilderness Development

European Wilderness Quality Standard and Audit System Report

EWQA Version: 1.8

April 2018

PARK INFORMATION

Protected area's name:	Carpathian Biosphere Reserve
Name of the Wilderness:	Uholka-Shyrokyy Luh Wilderness
Country(s):	Ukraine
Geographical position:	48°15,07"N 23°39,34"E
IUCN classification:	I
Main ecological classification:	Broadleaf Forest Wilderness
Number of visitors per year:	>500
Size of Wilderness:	7 117 ha
Size of protected area (without buffer zone):	57 880 ha
Year Special Protected Area established:	1968

PARK MANAGEMENT INFORMATION

Address:	Carpathian Biosphere Reserve, Krasne Pleso Steet, 77, Rakhiv, Zakarpattiaa oblast, Ukrajina, 90600
Telephone:	+380 3132 22193
E-mail:	cbr-rakhiv@ukr.net
Web-site:	http://cbr.nature.org.ua/main.htm
Director:	Mykola Rybak
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AUDIT RESULT:

Certification Level:	Platinum
Valid until:	2027
Intermediate Audit:	2022

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1. Executive summary

Wilderness represents a vital part of Europe's natural and cultural heritage. In addition to its intrinsic value, it offers the opportunity for people to experience the spiritual quality of nature in the widest experiential sense – beyond mere physical and visual attributes and in particular its psychological impact. Wilderness also provides important economic, social and environmental benefits, including ecosystem services.

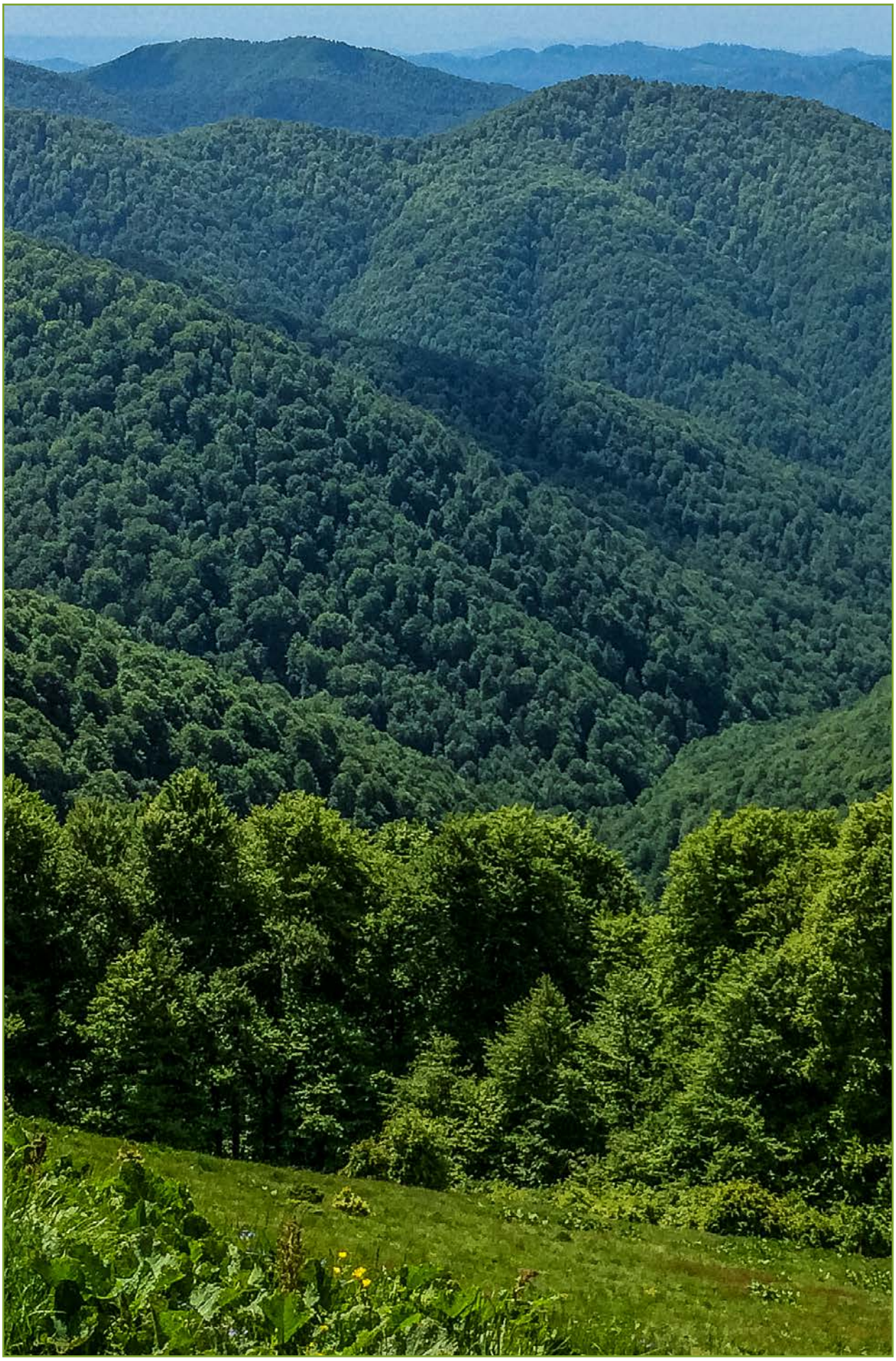
The European Wilderness Society, as a pan-European, Wilderness and environmental advocacy organisation, has developed a standardised Wilderness norm: the European Wilderness Quality Standard and Audit System. This norm is a tool to identify, designate, manage and promote European Wilderness in order to support Wilderness long-term existence and its further development and restoration.

The European Wilderness Quality Standard and Audit System serves as a basis for effective Wilderness protection, designation, restoration, and promotion of Wilderness across a range of geographical and political regions in Europe. It provides an easily understood, unambiguous and practical Wilderness benchmark system that can mobilise the necessary interest and support among practitioners across the key sector of society.

The European Wilderness Quality Standard and Audit System is a mechanism which was used to assess the quality of Wilderness within the Uholka-Shyrokyy Luh Wilderness. The 7 117 ha Uholka-Shyrokyy Luh Wilderness is part of the Carpathian Biosphere Reserve, located in western Ukraine. The Uholka-Shyrokyy Luh Wilderness also includes the Uholka-Shyrokyy Luh WILD Forest (7,117 ha) and 3 WILDRivers – the upper watersheds of Mala Uholka River (7 km), Velyka Uholka River (8 km) and Shyrokyy Luh River (9 km).

The establishment of a Wilderness within the Uholka-Shyrokyy Luh massif is in response to a new nature conservation and biodiversity strategy for Ukraine, which aims to strengthen the Wilderness character of several protected areas.

The Uholka-Shyrokyy Luh Wilderness applied to be audited using the European Wilderness Quality Standard and Audit System. This audit lasted from September 2016 until October 2017 and included an extensive site assessment from 28th May to 6th June 2017. The result of the research, the site assessment and the data verification resulted in a list of 95 recommendations of differing priorities, all of which should be completed by 2027.



2. Wilderness Concept in Europe[1]

2.1. Introduction

Wilderness is a vital part of Europe's natural heritage. This is underpinned by an ongoing trend towards the designation of Wilderness in Europe e.g. the UNESCO World Heritage Site 'Ancient and Primeval Beech Forests of the Carpathians and other regions of Europe', or recent initiatives to promote Wilderness (e.g. Wild Europe Initiative, European Wilderness Society, etc., Martin et al., 2008).

The trend towards Wilderness conservation and promotion raises certain questions about what the term Wilderness actually means in a European context. In Central European countries, no legislation comparable to the US Wilderness Act exists, which clearly defines Wilderness as of a minimum area size and designates places exclusively as such (Lupp et al., 2011). Although the term Wilderness has long existed in various European languages, it is a rather new concept as a concept for nature conservation in Central Europe (Hintermann et al., 1995; Zunino, 2007). The German term 'Wildnis' (Wilderness) also has an associated meaning as something looking messy and untidy giving Wilderness a rather negative meaning (Lupp et al., 2011). As no clear definition for this term seems to exist, misunderstandings may occur (Lupp et al., 2011). Murray (1968) even assumes that "Wilderness is what men think it is".

According to the US Wilderness Act (1964) Wilderness, are "areas where the Earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain" (US Wilderness Act, 1964). It reflects a holistic approach, as well as preserving the capacity of the landscape to experience what the country was like when the first European settlers arrived (Lupp et al., 2011). The current definition for IUCN Category Ib (Wilderness Areas), defines Wilderness as "usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition." (Dudley, 2008). This definition of IUCN is strongly relying on the definition of the US Wilderness Act (Vicenzotti, 2010).

1) The texts in this chapter is based on information available in the following document: The European Wilderness Quality Standard and Audit System in the scientific context of current Wilderness research, Michael Huber & Michael Jungmeier (E.C.O. Institute of Ecology/University of Klagenfurt) February 2016.

However, after thousands of years of shaping European landscapes, this primeval imagination of Wilderness is hardly achievable. It soon became apparent, that an individual definition of Wilderness as a conservation concept in Europe was required to reflect the current natural and spatial conditions and the cultural context. Numerous authors acknowledge the difficulties in finding an appropriate definition as next to a conservation concept and a historic concept, Wilderness is above all a cultural concept. Trommer (1997) calls the European Wilderness mainly a cultural phenomenon being a contrast to civilization.

One man's Wilderness is another's roadside picnic ground (Nash, 1982, P.1).

Lupp et al., (2011) observed that the Wilderness discussion in Central Europe lacks a common physical and spatial definition and that this is also an indication for strong ethical and religious, educational and cultural motifs in the demand for Wilderness. Thus, they conclude that Wilderness more is a state of mind (Nash, 2001) or a mental construct (Vincenzotti & Trepl, 2009) (Lupp et al., 2011).

The European Wilderness Quality Standard and Audit System definition

As a reaction to the lack of a common European definition of Wilderness, the Wilderness Working Group of the Wild Europe Initiative developed and generated the definition of European Wilderness and Wild Areas (Wild Europe Initiative, 2013), which builds on the definition of the existing IUCN Category IB. According to the definition, Wilderness and Wild areas are defined as follows:

> *"A Wilderness is an area governed by natural processes. It is composed of native habitats and species, and large enough for the effective ecological functioning of natural processes. It is unmodified or only slightly modified and without intrusive or extractive human activity, settlements, infrastructure or visual disturbance."*

> *"Wild areas have a high level of predominance of natural process and natural habitat. They tend to be individually smaller and more fragmented than Wilderness, although they often cover extensive tracts. The condition of their natural habitat, processes and relevant species is however often partially or substantially modified by human activities such as livestock herding, hunting, fishing, forestry, sport activities or general imprint of human artefacts."*

The definition of Wilderness by the Wild Europe Initiative is used for the European Guidelines on Management of Wilderness and Wild Areas in the Natura 2000 Network (European Commission, Zoltan Kun & Vlado Vancura, European Wilderness Society, 2013) and in the European Commission Wilderness Register.

The understanding of Wilderness as a basis for the European Wilderness Quality Standard and Audit System is rather close to the definition as provided by the US Wilderness Act (1964). It shares the same understanding of Wilderness, but accepts a certain extent of modification. The introduction of so called wild areas can be considered as a concession to a

European context. However, the definition does not address the issue of Wilderness as a state of mind (Nash, 1982; Nash, 2001) or as a cultural concept (Stremlow & Sidler, 2002; Trommer, 1997; Vicenzotti & Trepl, 2009).

Hoheisel et al., (2010) claim that Wilderness is not a feature that can be described in natural scientific terms only but needs a more sociocultural approach. As not only the European Wilderness Initiative and the European Wilderness Society, but also the European Commission adopted this definition in their guideline, this could be as well a first step towards a shared set of common features of Wilderness and thus building a foundation for a common European understanding of Wilderness.

According to the definition, the European Wilderness Quality Standard and Audit System is based on the following key issues describing Wilderness:

- **Governed by natural processes:** This is considered a basic principle and is in line with the understanding of Wilderness as proposed by IUCN Cat Ia or Ib, to a certain extent even with IUCN Cat II. Nationalparks which have the priority objective to allow for dynamic processes on a large scale (Dudley, 2008). It is also congruent with the US American definition of Wilderness.

- **The presence of native habitats and species:** This explicitly includes species and habitats that are native to a certain place, which excludes (heavily) degraded habitats and neobiota species.

- **Sufficient size to ensure the effective functioning of natural processes:** This acknowledges that a certain size is needed to allow for undisturbed and dynamic natural processes. However, minimum sizes are hard to define and depend on the type of habitats. The label assigned to the Wilderness (bronze, silver etc.) is independent of the habitat type and size of the area.

- **Unmodified or slightly modified area:** This focuses on areas, which have been mostly exempt from human modification in the past. This also means that heavily modified areas cannot be considered Wilderness at least on a medium perspective. However, a definition of slightly modified is yet to be provided.

- **Exempt from intrusive or extractive human activity or impact:** This clearly defines Wilderness as areas, where no current human activity or impact occurs irrespectively of the time since it has been exempting from any use.

- **Visual disturbance:** This relates to a specific impact of humans by means of a built environment and infrastructures which disturb the unspoilt character of a Wilderness. However, this closely relates to the recreational aspect of Wilderness, as it might be people who considers a disturbance.

This definition is the basis for the European Wilderness Quality Standard and Audit System, its principles, criteria and indicators, which are supposed to further specify the above mentioned aspects of Wilderness. Additional thresholds and further specification of definitions is part of the ongoing development of the European Wilderness Quality Standard and Audit System.

Similarly, as discussed in Aplet et al., (2000), there is a differentiation between Wilderness, which has a strict and narrow definition, and so called wild areas (or wild lands in Aplet et al., 2000), which can be found in any landscape at any scale and have an intermediary character when referring to the Wilderness Continuum as proposed by Lesslie & Taylor (1985). Consequently, Wilderness or wild areas can be found at the more natural and least developed end of an environmental modification spectrum. Thus, by including the definition of wild areas it is being acknowledged that there is not a fixed threshold which defines Wilderness, but a continuum which changes over time. This is also acknowledged by Ceasu et al., (2015), who consider rewilding of abandoned farmland in order to create room for increased Wilderness experiences and a more extensive and self-regulating ecosystem as a viable option within the Wilderness discussion.

European Wilderness Quality Standard and Audit System makes the claim to locate the current status on the Wilderness Continuum by assessing a number of criteria and indicators. However, Orsi et al., (2013) point out the problem to locate the point, along the continuum, beyond which there is Wilderness as this decision is affected by individual perceptions. Comber et al., (2010) even assume that the majority of wildness studies still seem largely arbitrary, leading to results that reflect the viewpoint of a group of scientists and stakeholders (e.g. managers, NGOs). Some authors even argue that past landscape modifications by human populations and pervasive human impacts across scales make the idea of Wilderness particularly in Europe inconsequential (Heckenberger et al., 2003).

This makes clear that the European Wilderness Quality Standard and Audit System operates in a rather dynamic new area, which demands absolute transparency and well-defined criteria and thresholds, even more as there is discussion going on and criteria and thresholds are not yet agreed on by the research community. The work of the European Wilderness Society thus constantly works on developing, defining and refining thresholds to test them in practice.

Definition of natural processes

All definitions of Wilderness relate to so called natural processes. Thus, in order to assess Wilderness, an appropriate definition of which processes are included is required. A comprehensive overview and definition has been prepared by Wild Europe (2012). This is particularly interesting as it allows for a more comprehensive understanding of the definition used by the European Wilderness Quality Standard and Audit System. According to Wild Europe (2012) natural processes comprise:

Abiotic factors (wind, water, fire, avalanches, geology and climate)
Biotic factors are comprised of

- Wildlife (Trophic levels, population dynamics, migration, prey-predator relationships etc.).
- Habitats and flora (Natural succession, ecotone functioning, habitat mosaics, reproduction and population dynamics etc.).
- Natural cycles (Sequestration and storage, availability of biomass, nitrogen etc.).

Furthermore, scale plays a prominent role as it is necessary to allow the full range of processes with a special focus on space for abiotic processes and on metapopulations. Further key principles of Wild Europe (2012) for the functioning of natural processes refer to self-sustained processes, which are free from external influences and show the highest species variability and broadest age structure.

2.2. Assessment of Wilderness

Lupp et al., (2011) carried out a comprehensive analysis of the current state of Wilderness research and concluded that, even quite theoretical work has been carried out so far in a European context, but that concrete, empirical research is still lacking. Theoretical research has not yet been fully tested on the ground, which makes it rather challenging to elaborate a system to assess the quality of a Wilderness. The European Wilderness Quality Standard and Audit System is one of the few efforts to standardise and put theoretical work in practice.

Even though, the conservation of Wilderness is an objective target that is socially desired and a main task of protected areas (Machado, 2004; Mittermeier et al., 2003), there is no generally applicable method for recording and assessing this value (Mayrhofer et al., 2015).

The following section provides a brief overview about the various efforts to structure, conceptualise and assess Wilderness with a specific focus on a European context:

The dimensions of Wilderness

Ceausu et al., (2015) provide a comprehensive overview of current approaches. They consider Wilderness a multidimensional concept that has developed from an aesthetic idea towards a science- based approach. According to them, a Wilderness assessment should at least capture a subjective, human experience as well as an ecological dimension of minimally impacted ecosystems. Some of the main currently used conservation approaches regarding Wilderness consider Wilderness from a rather strict point of view focusing on the degree of human presence, biophysical aspects of natural processes, ecological communities and ecosystems that develop in the absence of human management (Brooks et al., 2006; Kalamandeen & Gillson, 2007).

The qualities of Wilderness

When it comes to assess the quality of Wilderness, the question raises, which qualities comprise Wilderness. A number of approaches and definitions from the American context, such as a minimum size of 5000 acres (2000 ha), or the possibility to hike for several days without finding traces of human use are not very well suited for Central Europe (Lupp et al., 2011).

The European Commission (2013) requires that any evaluation of the effectiveness of protected areas for the conservation and development of Wilderness needs to address the four qualities of Wilderness: a) naturalness, b) undisturbedness, c) undevelopedness and d) scale. In varying terms with similar meanings all assessments refer to these dimensions (e.g. remoteness (Mackey et al., 1998; Mayerhofer et al., 2015); solitude (Aplet et al., 2000)).

Some authors also refer to trophic chains by looking at the spatial occurrence of megafauna species such as apex predators, large herbivores or birds of prey (Ceausu et al., 2015). Furthermore, human impact such as land-use, pollution (Aplet et al., 2000) or artificial light (Ceausu et al., 2015) and human infrastructures such as roads, buildings or settlements, natural composition, uncontrolled processes, unaltered structures and many more are used as proxies to describe the Wilderness quality. In other approaches the term untrammelled (U.S. Wilderness Act, 1964, BLM 2010) is also used. Initial efforts to include the documentation and monitoring of natural processes have been undertaken by Jungmeier et al., (2015).

There are several GIS-based studies which measure Wilderness on the basis of Wilderness quality on a regional, national or even global scale by using varying combinations of the above mentioned qualities (Orsi et al., 2013; Plutzar et al., 2013; Carver et al., 2011; Fischer et al., 2010; Fritz et al., 2000; McCloskey & Spalding, 1989; Mayrhofer et al., 2015).

Reif (2013), who reflected the operationalisation of Wilderness targets in Germany, proposes five qualities namely (1) size, representing the completeness of processes, states, and species composition, (2) habitat continuity, (3) rareness and endangerment, (4) connectivity and absence of fragmentation and (5) representativeness.

Kuiters et al., (2013) made a comprehensive effort to identify Wilderness in Europe and implement a European Wilderness Register by adhering to the four Wilderness qualities. Their analysis included zonation, size of the core zone, extent of management measures and interferences as well settlements, road infrastructure and access, extractive uses and management aspects such as wildlife management.

In general, there seems to be a trend towards the use of at least the four qualities of Wilderness as also defined by the European Commission (2013). Consequently, the following section makes an effort to further specify these dimensions and the current state of debate.

Naturalness

According to the European Wilderness Guidelines, the quality Naturalness includes naturalness of vegetation, naturalness of the occurring species and naturalness of the natural processes (EU Commission, 2013). However, there is substantial discussion about how to measure naturalness. Some authors even argue that past landscape modifications by human populations and pervasive human impacts across scales make the idea of Wilderness particularly in Europe inconsequential (Heckenberger et al., 2003). This raises the question of the respective baseline against which naturalness is measured. In practice, traditional agricultural landscapes often have become the benchmark against which biodiversity change was measured (Papworth et al., 2009).

Most approaches make use of proxy indicators such as distance to roads or settlements as well as distance from patches of artificial / modified land cover (e.g. Orsi et al., 2013) due to a lack of spatial data on other indicators of naturalness. Several authors also describe naturalness by indicator species (Mayrhofer et al., 2015), by forest hemeroby (Mayrhofer et al., 2015; Grabherr et al., 1998) or by a comparison with the potential natural vegetation (PNV, e.g. Bohn et al., 2000; Ceausu et al., 2015). This issue is addressed by the European Wilderness Quality Standard and Audit System by the principle Natural process and Biodiversity and its related criteria.

Undisturbedness

According to the EU Commission's definition (2013), undisturbedness refers to an administrative, statutory or legislative measure. A Wilderness should be free from modern human control or manipulation. While existing human interventions like infrastructure and land uses are assessed in the categories of naturalness and undevelopedness, regulations with regards to human interactions in the given area are considered main criteria to assess undisturbedness (Mayrhofer et al., 2015). This can be ensured by regulations, legal provisions, management plans or an appropriate zonation system, which should provide a frame to minimize possible disturbances. Some authors also consider stand age of forests as appropriate indicator to assess the degree of undisturbedness from a historical point of view (Mayrhofer et al., 2015).

Undevelopedness

The quality of undevelopedness can be measured by number of or distance to settlements or other human artefacts (Plutzar et al., 2013; Orsi et al., 2013; Tricker et al., 2012). Tracks that allow motorised vehicles increase the potential for modifying the environment and are considered human artefacts. Evaluating undevelopedness could be based on an analysis of length and density of the road network (Mayrhofer et al., 2015). Orsi et al., (2013) define solitude as an important factor for the perception of Wilderness by visitors and have used the probability of meeting other visitors by length and visitor frequency on footpaths. Aplet et al., (2000) took population density as an indicator for solitude.

Scale

From an ecological point of view, it can be argued that a Wilderness should meet minimum size features (i.e. large enough for the effective ecological functioning of natural processes). The spatial scale needed for maintaining the ecological integrity of a natural area determines its minimum size (i.e. scale needed for undisturbed natural ecological processes and viable species populations). This largely depends on the ecosystem types involved (Kuiters et al., 2013).

Thus, IUCN does not give standardised minimum sizes for Wilderness as long as it is ensured that areas are large enough for an effective ecological functioning of natural processes without intrusive or extractive human activity (European Commission, 2013). Thus, this also includes core zones of Nationalparks (IUCN Category II) which allow for dynamic processes on a large scale (Dudley, 2008). The Swedish Environmental Protection Agency (SEPA), has further specified standards for IUCN Ib Wilderness to 1 000 ha in Northern, and 500 ha in Southern Sweden (Kuiters et al., 2013), following a similar definition as Finland (1 000 ha; European Commission, 2013).

The US Wilderness Act (1964) generally considers about 2000 ha as an appropriate minimum size. The European Wilderness Register adopted a minimum threshold value for Wilderness core zones of at least 3 000 hectares (Kuiters et al., 2013). Other initiatives even define minimum areas up to 10 000 ha (PAN Parks, 2009).

Given the variety of minimum sizes, the frequent absence of minimum areas and the numerous attempts to provide definitions for a minimum size of Wilderness in Europe show that primarily values and perspectives are important in defining thresholds.

Scale is not only important from an ecological point of view but it can also be defined by anthropogenic factors. A certain size may be necessary to enable the protection of whole landscapes.

This is important as people spiritually identify with Wilderness and feel emotionally bound to certain landscape features. The size of the area often determines the perception of 'wildness', i.e. if a visitor can experience solitude, wholeness and other spiritual experiences.

The issue of sufficient size must be considered with reference to the surrounding landscape as the quality of the surrounding landscape determines the ecological connectivity and the functioning of the ecosystems in the core area. The surrounding landscape also influences how the visitors experience the area. Therefore, Wilderness is often related to remoteness, although it is not a strict prerequisite (European Commission, 2013).

Classification of Wilderness

Lupp et al., (2011) analyzed the current discussion regarding approaches to determine various types of Wilderness (e.g. by Diemer et al., 2003), who proposes four designations based on spatial extents (Nationalparks (>1 000 ha), Urban Wilderness (<1 000 ha close to cities), Urban or Rural Rewilding Sites (<500 ha) and Rewilding Microcosms (several hectares)).

The Wilderness continuum assesses Wilderness quality in relation to the degree of modification as well as in relation to the degree of freedom to develop without human interference. Similarly, Aplet et al., (2000) describe five different types of Wilderness depending on the degree of naturalness and freedom.

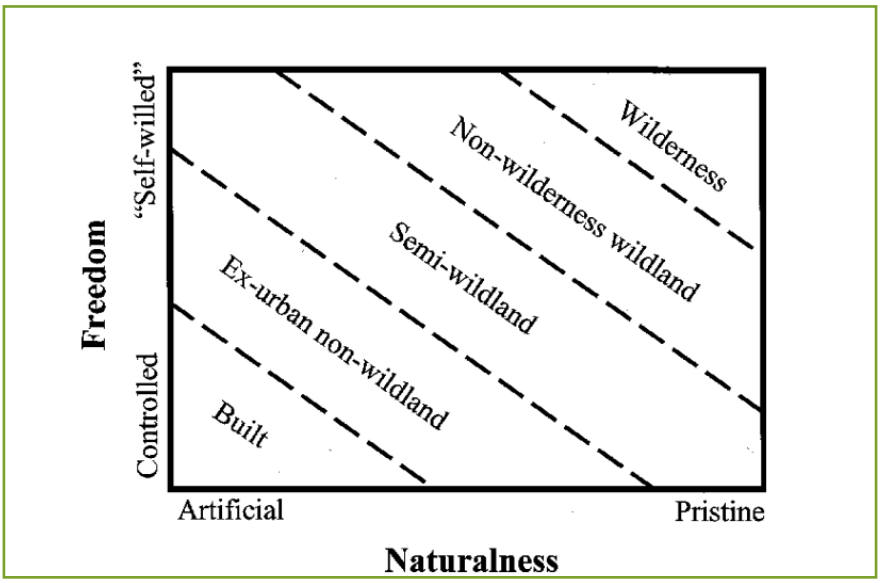


Fig. 1: The „continuum of wildness" with increasing wildness as a function of naturalness and freedom from human control.

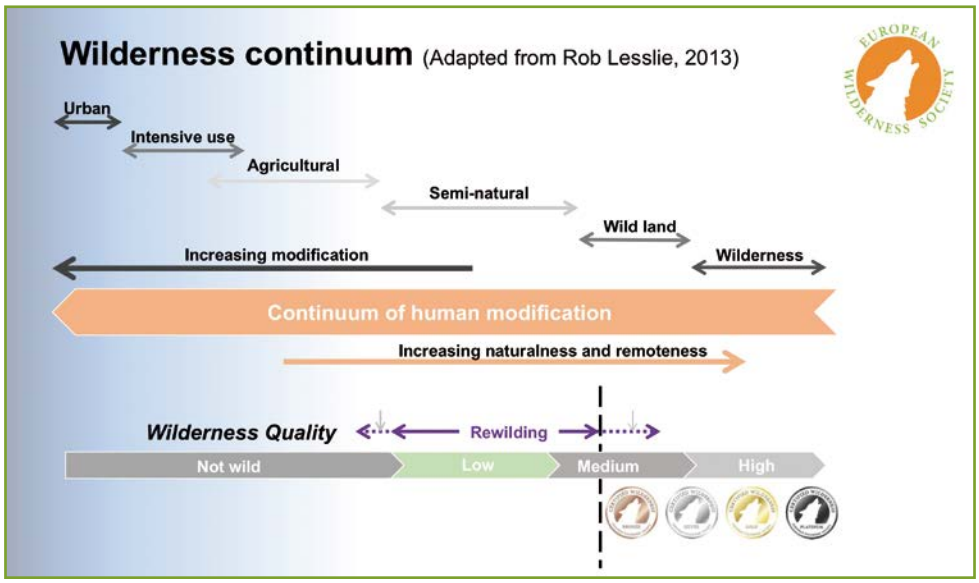


Fig. 2: The Wilderness continuum as a basis for the European Wilderness Quality Standard and Audit System.

Considering the figures showing the Wilderness continuum, is interesting to see how they relate to the European Wilderness Quality Standard and Audit System and how they are or could be operationalised (see labels on the bottom right).

The classification of Aplet et al., (2000) offers an attractive two-dimensional model. The assessment of self-will or control is rather easy to operationalise by referring to existing regulations, eventual zoning and management plans. However, the second key dimension, naturalness, is widely considered a core dimension for Wilderness, but raises a number of questions yet to be answered. How can a pristine environment be characterised? How to define thresholds for naturalness? Several studies have addressed this issue (as indicated further above) using proxies such as hemeroby, potential natural vegetation, indicator species or even just the absence of human infrastructure.

If considering a comprehensive assessment of Wilderness, a further issue needs to be considered: Where to draw the baseline? How to define understandable thresholds? The location of the different types or labels of Wilderness on this matrix is a key challenge for research. Orsi et al., (2013) point out the problem to locate the point, along the continuum, beyond which there is Wilderness as this decision is affected by individual perceptions.

Nine European Wilderness Quality Standard and Audit System principles

The European Wilderness Quality Standard and Audit System is based on nine principles.

Table 1: The dimensions of Wilderness and the European Wilderness Quality Standard and Audit System.

	Dimensions of Wilderness				
European Wilderness Quality Standard and Audit System Principles	Naturalness	Undisturbedness	Undevelopedness	Scale	Management
Wilderness size and zoning				√	
Natural processes and biodiversity	√				
Wilderness stewardship					√
Wilderness restoration					√
Wilderness extractive and intrusive uses	√				
Wilderness disturbance		√	√		
Control strategies for fire, diseases, invasive species and other natural disturbances		√			
Wilderness research and monitoring					√
International relevance and importance of the Wilderness					√

These general principles adequately reflect the Wilderness qualities as defined by the European Commission (2013) without referring to the specific criteria or indicators.

However, this leaves three principles, which provide additional qualities going beyond the current Wilderness debate. This comprises mainly the principles of Wilderness Restoration, Wilderness Research and Monitoring and International Relevance. Based on these principles, the European Wilderness Quality Standard and Audit System covers two key dimensions:

- The quality of the Wilderness (the current state of biodiversity, natural processes, existing infrastructures, visitors, eventual uses and disturbances).

- The quality of the Wilderness stewardship (existence of plans, regulations, organisational settings, guidelines how to deal with certain issues, etc.).

Thus, the European Wilderness Quality Standard and Audit System gives not only an assessment of the current quality of Wilderness, but also about the current quality and standard of the authority responsible to steward the respective Wilderness. This could be a major additional value of the European Wilderness Quality Standard and Audit System subject to the condition that the related indicators cover all relevant aspects. However, the indicators are not subject of the present review.

The principle international relevance aims to describe the Wilderness and its importance within the international conservation network as it assesses whether the area is recognised by IUCN or similar organisations, whether it is part of the Natura 2000 network and if endangered species or habitats are protected by the Wilderness. Furthermore, it serves a proxy indicator by assessing whether the stewardship is able to comply with international requirements.

Conclusions and Perspectives

The current essay reflects the concept of the European Wilderness Quality Standard and Audit System in the light of the current Wilderness research. Apparently, there is no other such assessment available even though there are numerous ongoing research activities aiming to assess Wilderness. Most of the research has either a focus on theoretical reflection of the concept Wilderness or is strictly case-study based.

The approach of the European Wilderness Quality Standard and Audit System is not primarily focusing on theoretical reflection, but is a well-elaborated effort for a practical and pragmatic assessment summarized in a process-oriented tool for a reproducible assessment of Wilderness. The approach applied to assess Wilderness is well covered by the existing criteria and principles. It also includes the four qualities of Wilderness as defined by the European Commission (2013).

However, further efforts should focus on the definition and evaluation of further thresholds and on an intensive discussion on the key issue of naturalness. Several authors provide viable approaches (e.g. hemeroby or potential natural vegetation) also applicable on larger scales to

contribute to an assessment of naturalness going beyond proxies such as the absence of human traces or infrastructures. The authors recommend to strengthen the issue of naturalness as it is considered a key dimension of Wilderness by science.

The approach to build on the Wilderness continuum is viable and appropriate from a scientific point of view and provides a sound framework. Further efforts integrate this concept into the European Wilderness Quality Standard and Audit System methodology and to further specify thresholds are currently being discussed by the European Wilderness Society. Results are to be included by the next update of the European Wilderness Quality Standard and Audit System methodology. This will strengthen the credibility and transparency of the assessment as well as of the criteria applied to reach a certain label. Regarding the structure, it is recommended to strictly separate the management perspective and the Wilderness quality principles as this will make the structure more comprehensible and will further emphasise one of the strengths of the European Wilderness Quality Standard and Audit System namely bringing together quality and management.

2.3. Current development of European Wilderness Quality Standard and Audit System

The main reason for the absence of a coordinated strategy on Wilderness in Europe is the lack of a common Wilderness standard and systematic Wilderness audit. The following text is presenting work done by the European Wilderness Society in the previous years to develop a habitat independent Wilderness standard and international systematic Wilderness audit system.

Wilderness standard

There are many different words for 'Wilderness' and 'wild' and it is impossible to adequately promote, protect, and restore an area if its standard remains unclear, or are understood differently according to geographic location, individual perception or local culture. It is important that this standard can thus be applied in operational circumstances, in a socio-economic and geographical independent way.

Wilderness audit

An audit is an objective examination and evaluation to make sure that the management plans follow the Wilderness principles in a fair and accurate way. The Wilderness audit assesses the quality of potential Wilderness in Europe.

European Wilderness Quality Standard and Audit System

To link the two lacking elements, i.e. the Wilderness standard and Wilderness audit, the European Wilderness Society developed the European Wilderness Quality Standard and Audit System, with support of several partners, in a one solution-oriented process (European Wilderness Society, 2015) .

This is a habitat independent, solution oriented, European wide basis for identification and audit of Wilderness. Besides that, the system includes also a continuous control and a 10 year cycle re-audit, supported by sophisticated marketing.

The European Wilderness Society developed the European Wilderness Quality Standard and Audit System to provide a common European Wilderness certification standard, which is following the common accepted "Definition for European Wilderness and wild areas" developed by the Wild Europe initiative (Wild Europe, 2012) .

The European Wilderness Quality Standard and Audit System is a continuation of the previous work of the Wild Europe Initiative and the European Wilderness Areas and Wild Areas definition (2013). It has a similar structure compared to a number of other quality standards, such as the Forest Stewardship Council or the Marine Stewardship Council.

Fig. 3: The Wilderness Audit assesses the current quality of Wilderness and the effectiveness of Wilderness stewardship.

Methodology of the European Wilderness Quality Standard and Audit System

The European Wilderness Quality Standard and Audit System is based on a system of principles, criteria and indicators.

The European Wilderness Quality Standard and Audit System understands principles as the fundamental statements about a desired outcome. Criteria are the conditions that need to be met in order to comply with a principle. Indicators are the measurable states, which allow the assessment whether or not a particular criterion is met.

In other words, the criteria are necessary to demonstrate that the principles have been met and the indicators show which criteria have been achieved. Consequently, each criterion and indicator is an essential part of the whole system and all need to be met for the different categories of the European Wilderness Quality Standard and Audit System.

The European Wilderness Society puts a lot of effort into the discussion and further development of the European Wilderness Quality Standard and Audit System and thresholds for its indicators, in order to provide a comprehensive tool for operationalising the theoretical discussion.

Benefits of European Wilderness Quality Standard and Audit System

Implementation of the European Wilderness Quality Standard and Audit System provides the following benefits:

- **Improved Compliance –** The European Wilderness Quality Standard and Audit System is compliant with all recent and existing Wilderness definitions currently applied in most European countries. This provides easy integration into national and regional policies.

- **Safety and reliability –** Adherence to the European Wilderness Quality Standards and Audit System helps to ensure visitor satisfaction, reliability and environmental care. As a result, visitors perceive Wilderness as more dependable – this in turn raises visitor confidence, increasing visits and financial support.

- **Improving effectiveness** - The European Wilderness Quality Standard and Audit System provides Wilderness managers with reliable third-party recommendations based upon a detailed SWOT analysis on the basis of a standard set of European-wide accepted criteria and indicators.

- **Support from government policies and legislation** - Standards are frequently referenced by regulators and legislators for protecting users and business interests, and to support government policies. Standards play a central role in the European Union's policy for a Single Market. Adherence to the European Wilderness Quality Standards and Audit System will show the commitment to a common set of European values.

- **Interoperability –** The ability of Wilderness to work together, relies heavily on a common set of Wilderness standards.

- **Encourage Research –** European Wilderness Quality Standards and Audit System provides a solid foundation upon which scientists base their research and to enhance monitoring.

- **Marketing possibilities –** As more and more Wilderness adhere to the European Wilderness Quality Standards and Audit System more visitors and Wilderness advocates will support and promote Wilderness due to their increased awareness and confidence.

- **Cost reduction –** Potential Wilderness do not have to reinvent the wheel, because all the basic Wilderness criteria and indicators have already been thought through. This ensures that new Wilderness will support the same principles with the existing Wilderness network.

- **Wilderness benefits from Standards –** The European Wilderness Quality Standards and Audit System set minimum levels that help classify Wilderness according to several criteria and a multitude of indicators. They provide benchmarks against which Wilderness are audited. This gives the areas an incentive to improve their Wilderness to gain an advantage. In turn, this guarantees public access to more Wilderness for future generations.

Interpretation of the nine European Wilderness Quality Standard and Audit System principles

The European Wilderness Quality Standard and Audit System is based on nine principles, which are the following (in order of their appearance in the European Wilderness Quality Standard and Audit System guideline):

- **Wilderness size and zoning:** Wilderness does not dependent on a minimum size. Wilderness has a defined boundary and should have three zones: the Wilderness zone (where there is no human intervention and natural dynamic processes govern), the Restoration zone (where restoration and/or expansion is undertaken), and the Transition zone (where further expansion of the Wilderness is planned).

- **Natural processes and biodiversity:** Wilderness must have a Wilderness zone, where dynamic open-ended natural processes can take place without human intervention, in order to contribute to the conservation of threatened species of that region and to become a leading example of an undisturbed habitat.

- **Wilderness stewardship:** The Wilderness stewardship contains several Wilderness concepts, like a biodiversity stewardship plan, a support plan for natural dynamic processes, landscape management and training of the Wilderness stewardship team. In addition, this principle covers the impact of tourism.

- **Wilderness restoration:** Wilderness restoration is an intentional activity that initiates or accelerates the recovery of a damaged ecosystem that has Wilderness potential. Wilderness restoration includes a wide range of activities, such as restoration of disturbed areas and the reintroduction of native species. These activities should be implemented once and not continuously.

- **Wilderness and extractive and intrusive uses:** The European Wilderness definition stipulates that the Wilderness zone is an area without extractive or intrusive uses.

- **Wilderness disturbance:** This principle focuses on the removal of permanent and temporary infrastructure, creating well-planned tourism access with minimal impact and regulating and limiting road access to the Wilderness, in order to reduce the human impact in the Wilderness zones.

- **Control strategies for fire, diseases, invasive species and other natural disturbances:** Ecological disturbances are one of the most profound aspects of Wilderness. Natural disturbances, like windstorms, are important sculptors of landscape and habitats. However, they are often considered problematic and undesirable.

- **Wilderness research and monitoring:** Wilderness offers opportunities to study the unique attributes of nature and natural processes. Quality Wilderness research and monitoring allows managers to make appropriate decisions. Research and monitoring activities should never be invasive and should minimize impact on the Wilderness zone.

- **International relevance and importance of the Wilderness:** A Wilderness is internationally recognised by the IUCN, UNESCO, and European Union, as well as other important international organisations.

Implementation of the European Wilderness Quality Standard and Audit System

- The first part of the European Wilderness Quality Standard and Audit System is a desk study. This includes examination of maps of the proposed Wilderness, and analysis of the current zoning system, which is crucial for a Wilderness. Important are constructive discussions on Wilderness research and the potential for enlargement of the Wilderness.

- The second part of the European Wilderness Quality Standard and Audit System is the field work - the Wilderness Field Audit.

- The third part of the European Wilderness Quality Standard and Audit System is office work. This includes development of the Audit report and SWOT analysis, interaction with Wilderness management and stewards.

- The fourth part is awarding of Wilderness diploma and Wilderness label.

2.4. The European Wilderness Quality Standard and Audit System process

The Wilderness Audit System is implemented in steps along the Wilderness Continuum. From candidate to Quick- or Full-Audit, from smaller to larger, from management to stewardship.

The European Wilderness Quality Standard and Audit System process has different variants depending on the size of Wilderness and objectives of the Wilderness stewards: The European Wilderness Quality Standard Quick-Audit and the European Wilderness Quality Standard Full-Audit.

Wilderness Candidate

At the beginning, it is important to formulate a clear Wilderness vision for the area. Based on this vision, several steps take place; an initial examination of the area, workshops with the management team, analysis of available and Wilderness relevant research, trainings with focus on: Wilderness management plan to Wilderness stewardship plan transition, Wilderness inventory, defined boundary of Wilderness as a result of mapping, etc.
After these steps, the area becomes designated as a European Wilderness Quality Standard and Audit System Candidate. During the following 2-3 years, various actions take place, such as development of a Wilderness Stewardship plan, management plan for invasive species, fire control management plan and a Wilderness restoration plan, in order to prepare the area for an audit.

After 2-3 years, the area will be examined according to the European Wilderness Quality Standard and Audit System (either Quick- or Full-Audit). Based on the results of this process, the area will be labeled in the relevant Wilderness category.

The Wilderness zone should gradually be enlarged in order to reach a maximum extent. The progress of restoration defines which Wilderness label would be assigned.

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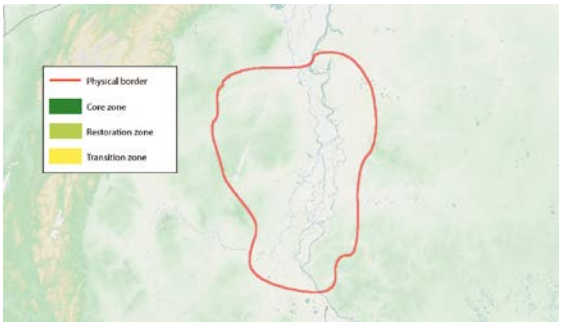
<td> 
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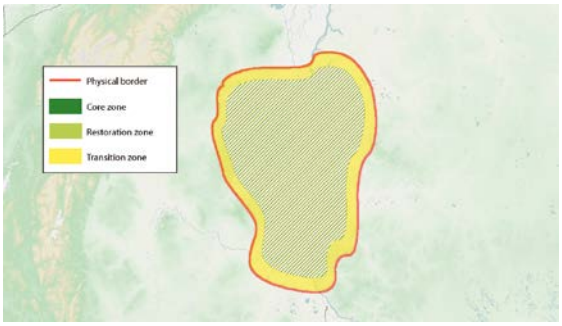
<td> 
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<tr>
<td>Step 1: Selection of the area is based on Wilderness quality mapping, giving it a physical boundary.</td>
<td>Step 2: Development of a vision for Wilderness.</td>
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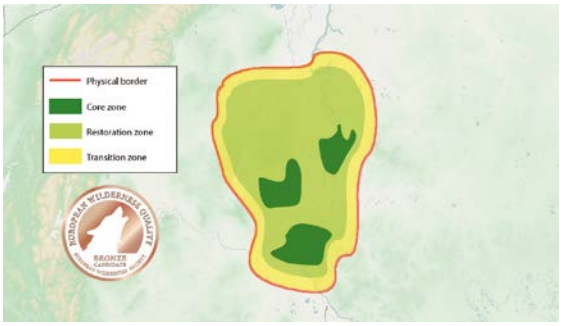
<td> 
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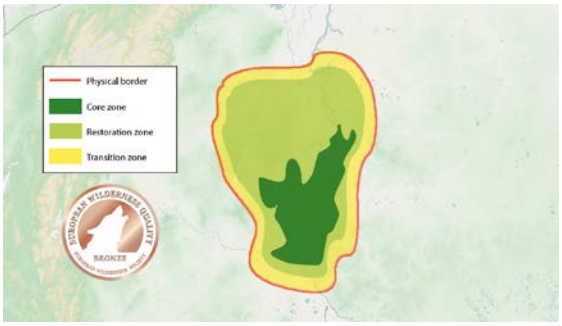
<td> 
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<tr>
<td>Step 3: Area receives candidate status, followed by a Wilderness audit over the next two years, utilising the European Wilderness Quality Standard and Audit System.</td>
<td>Step 4: Based upon the results of the European Wilderness Quality Standard and Audit System audit, a Stewardship Plan is created as well as a Wilderness restoration plan. The area is given an appropriate certified Wilderness category.</td>
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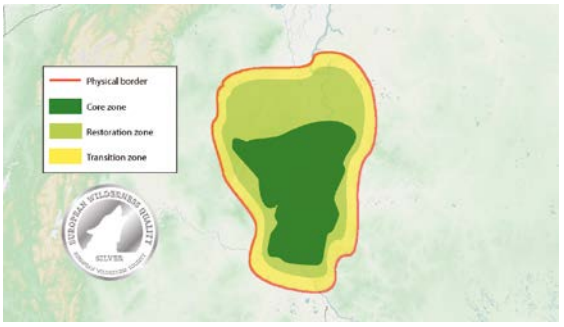
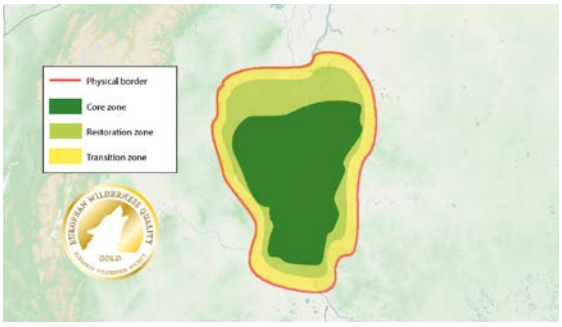
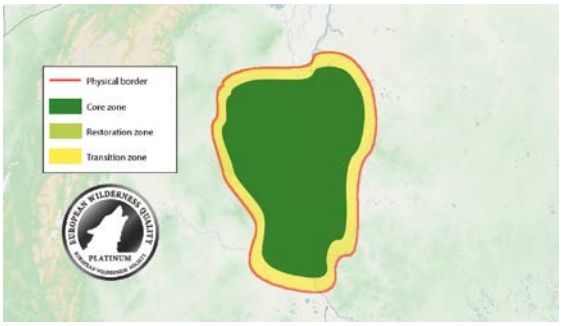


Step 5: *Restoration in the Restoration zone leads to non-intervention Wilderness zone of more than 2,000 ha. The area is given Silver certification.*



Step 6: *Progressive restoration leads to non-invention Wilderness zone reaching 3,000 ha and given Gold certification*



Step 7: *The restoration of Wilderness is complete.*

Elements of the European Wilderness Quality Standard and Audit System process:

- Quality standard (9 principles, 54 criteria, 300+ indicators)
- 14-day field audit
- 6 months research and analysis of findings
- Detailed SWOT analysis
- Wilderness Audit Reports (Quick Sheet, Quick-Audit Report, Executive summary including list of recommendations, Full-Audit Report)
- Detailed recommendations

European Wilderness Quality Standard Quick-Audit

This is for most larger areas typically the first step in the Wilderness audit process. In addition, the European Wilderness Quality Standard Quick-Audit is the perfect tool for most smaller wild areas with an exceptional high quality of Wilderness and limited budgets, which are interested in joining the European Wilderness Network and to prepare them for the full implementation of the European Wilderness Quality Standard.

The European Wilderness Quality Standard Quick-Audit also provides an opportunity for the audited Wilderness to correct weaknesses before undergoing a full certification according to the European Wilderness Quality Standard Full-Audit. During the Quick-Audit, the auditors will examine all relevant documents and cover these topics:

- Examination of the map of the proposed Wilderness,
- Development of a short analysis of the zoning system (particularly conditions of the Wilderness zone),
- Clarification the compatibility and size differences between zoning of the audited protected area and the Wilderness zoning of the European Wilderness Quality Standard and Audit System,
- Examination of the stewardship (management) plan for the potential Wilderness,
- Examination of the potential Wilderness biodiversity and tourism value,
- Examination of the potential for enlargement of the proposed Wilderness,
- Development of a detailed itinerary of the Quick-Audit,
- Implementation of a 3- to 5-day field audit of the proposed Wilderness,
- Writing a European Wilderness Quality Standard Quick-Audit report
- Writing a short list of the main recommendations
- Setting up a preliminary Wilderness Quality categorization according to the European Wilderness Quality Standard and Audit System for a maximum of 5 years.

European Wilderness Quality Standard Full-Audit

The European Wilderness Quality Standard Full-Audit is a systematic and very professional examination for larger Wilderness focusing on a high quality of Wilderness and protected areas that are already dedicated to a Wilderness stewardship (management) approach.

A European Wilderness Quality Standard Full-Audit includes, in additional to the mentioned Quick-Audit topics, such issues as:

- Development of comprehensive maps and photos, depicting the visual highlights of the audited Wilderness,
- Development of a detailed scientific explanation of the European Wilderness Quality Standard and Audit System in the context of current Wilderness research,
- Development of the history of Wilderness protection in Europe,
- Development of the history of Audited Wilderness protection,
- Detailed explanation of the verification team and their itinerary,
- Development of a biodiversity description of the habitat of the audited Wilderness,
- Examination of the legal structure, the stewardship plan, the tourism and the educational programmes of the audited Wilderness,
- 6 months of research and desk work,
- A 12-to 14-day field audit of the potential Wilderness, including overnight stays in the area,
- Development of a 15-20 page an executive summary, including list of recommendations,
- Development of a 150-200 page highly detailed Wilderness Audit Report, including a detailed SWOT analysis with the site specific recommendations for action,

- A Wilderness Quality categorisation according to the European Wilderness Quality Standard and Audit System for a period of 10 years,
- Comprehensive communication support with Public Relations, promotional material like flags, posters, brochures, etc.,
- Listing the audited Wilderness in the European Wilderness Network,
- Development of monitoring and evaluation plan,
- Certification and labelling valid for 10 years with a free monitoring audit after five years.

Fig. 4: The benefit of the European Wilderness Audit is improvement in the effectiveness of Wilderness stewardship.

2.5. European Wilderness Network

The European Wilderness Network, started under PAN Parks Foundation 17 years ago, has grown to now 38 members in 17 Countries with more than 300 000 ha of audited Wilderness. This network represents the best Wilderness all across Europe and continues to expand every year.

The European Wilderness Network categories

- Wilderness – Wilderness with a mixed habitat and a minimum Wilderness zone size of 1000 ha
- WILDIsland – Island with a terrestrial, coastal and surrounding marine habitat and no minimum Wilderness zone size
- WILDForest – Wilderness with a predominant forest habitat and a minimum size of 500 ha
- WILDCoast – Wilderness combining terrestrial, coastal and marine habitat and a minimum Wilderness zone size of 500 ha
- WILDRiver – River and riverbank habitat with a minimum length of 2 km

Size is an important factor for the categories of the European Wilderness Network. The issue of sufficient size must be considered with reference to the surrounding landscape, as the quality of the surrounding landscape determines the ecological connectivity and the functioning of the ecosystems in the Wilderness zone. The surrounding landscape also influences how the visitors experience the area.

All categories, i.e. Wilderness, WILDIsland, WILDForest, WILDCoast and WILDRiver, in the European Wilderness Network are unique and represent the best and wildest places in Europe. They cover a multitude of different habitats, all governed by natural processes and non-intervention stewardship techniques, following the same principles of the European Wilderness Quality Standard and Audit System.

Wilderness Quality Labels

There are four labels for Wilderness quality. Depending on a number of factors (size, stewardship, research, etc.) the Wilderness are labeled with a bronze, silver, gold or platinum Wilderness Quality certificate.

Wilderness size impacts many of the 54 criteria and therefore the larger the Wilderness is, in general, the higher the quality may be. Thus, there is no minimum Wilderness size as defining factor. Size is, like many other indicators, considered during the Audit and labeling process.

Fig. 5: Bronze-, Silver-, Gold and Platinum Wilderness-Categories,

Areas with platinum or gold labels are regarded as Wilderness, while those of bronze or silver are wild areas. A wild area can evolve into a Wilderness over a long term restoration process, as also considered in the Wilderness continuum (Rob Nash, 1985). For general communication purposes and easy understanding, the European Wilderness Society applies the term Wilderness for all categories and irrespective of the actual label.

Each audited area is assigned one of the five categories forming the European Wilderness Network and labelled one of the four labels.

In each of the five categories, the European Wilderness Society differentiates the Wilderness quality using the Bronze to Platinum labels, with Platinum being the most pristine and usually largest Wilderness.

The following table is showing how particular Wilderness categories are assigned to the relevant labels

Table 2: The dimensions of Wilderness and the European Wilderness Quality Standard and Audit System.

Category/Label	Bronze	Silver	Gold	Platinum
Wilderness	Zacharovanyy Kray	Königsbrücker Heide	Hohe Tauern	Čepkeliai
WILDIsland			Vilm	
WILDForest		Hainich		Uholka-Shyrokyy Luh
WILDCoast	Jasmund			Archipelago
WILDRiver	Belá			Mala Uholka

Each area is visited regularly by the European Wilderness Society, either to monitor or support the management of these areas.

Marketing Support

The European Wilderness Society is providing the European Wilderness Network Partner with an elaborate international communication and marketing strategy during the entire partnership free of charge. The Network Partner will benefit by receiving not only marketing material to be used in their day to day activities for free, but also be listed in the official search engine optimised European Wilderness Network Website, www.european-wilderness.network. Each Network Partner will have its own page on this website, including information on the specific Wilderness, pictures, sustainable tourism information and contact information.

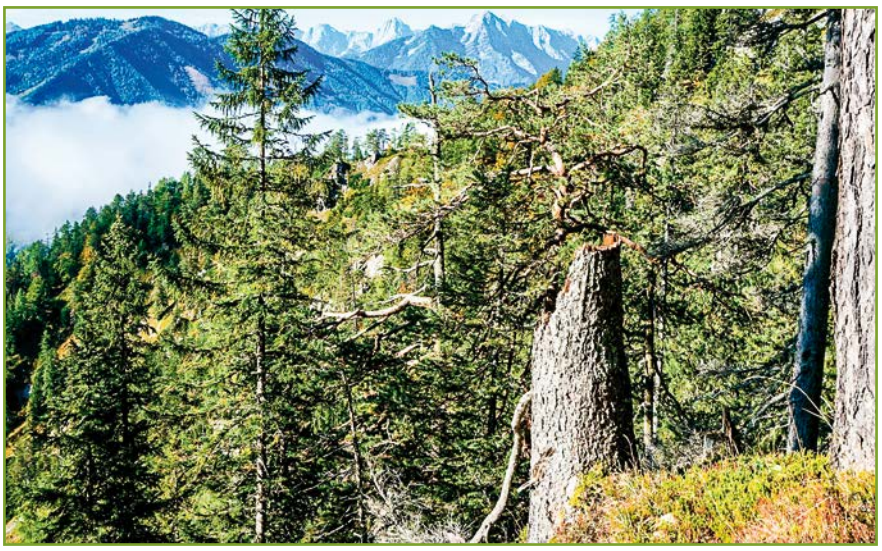


Fig. 6: The manager of a potential Wilderness proposes a Wilderness with a clearly defined boundary. Kalkalpen Wilderness, Austria.

- **European Wilderness Network marketing toolbox:** The European Wilderness Society supports the Network Partner by providing the European Wilderness Network Welcome Package, containing: European Wilderness Quality Audit Guide, European Wilderness Network Flag, European Wilderness Network Door sign, European Wilderness Network Desk sign, European Wilderness Network Newsletter, European Wilderness Society Journal, and European Wilderness Society marketing material.

- **European Wilderness Exchange Programme:** The European Wilderness Exchange Programme offers selected representatives of the European Wilderness Network to visit other Wilderness of the Network to exchange personal experience, professional know-how and to expand the personal Wilderness networks. This also includes the International Fellowship Programme to visit partners outside of Europe, i.e. USA or Canada.

- **European Wilderness Academy Days:** European Wilderness Network Partner receives one VIP ticket to attend the European Wilderness Academy Days – an annual network meeting. During the European Wilderness Academy Days, there will be a session dedicated to the Partners of the European Wilderness Network.

- **Literature and Publications:** Access to the European Wilderness Network Library, consisting of hundreds of documents on international Wilderness, exclusively available for Network Partners and constantly updated with new literature by the European Wilderness Society, including the European Wilderness Journal, Annual Report, Logging Report Romania, WILD5 in French, Spanish, Italian, Ukrainian, German and English, the European Wilderness Quality Standard or European Wilderness Standard Quick- and Full-Audit reports free of charge.

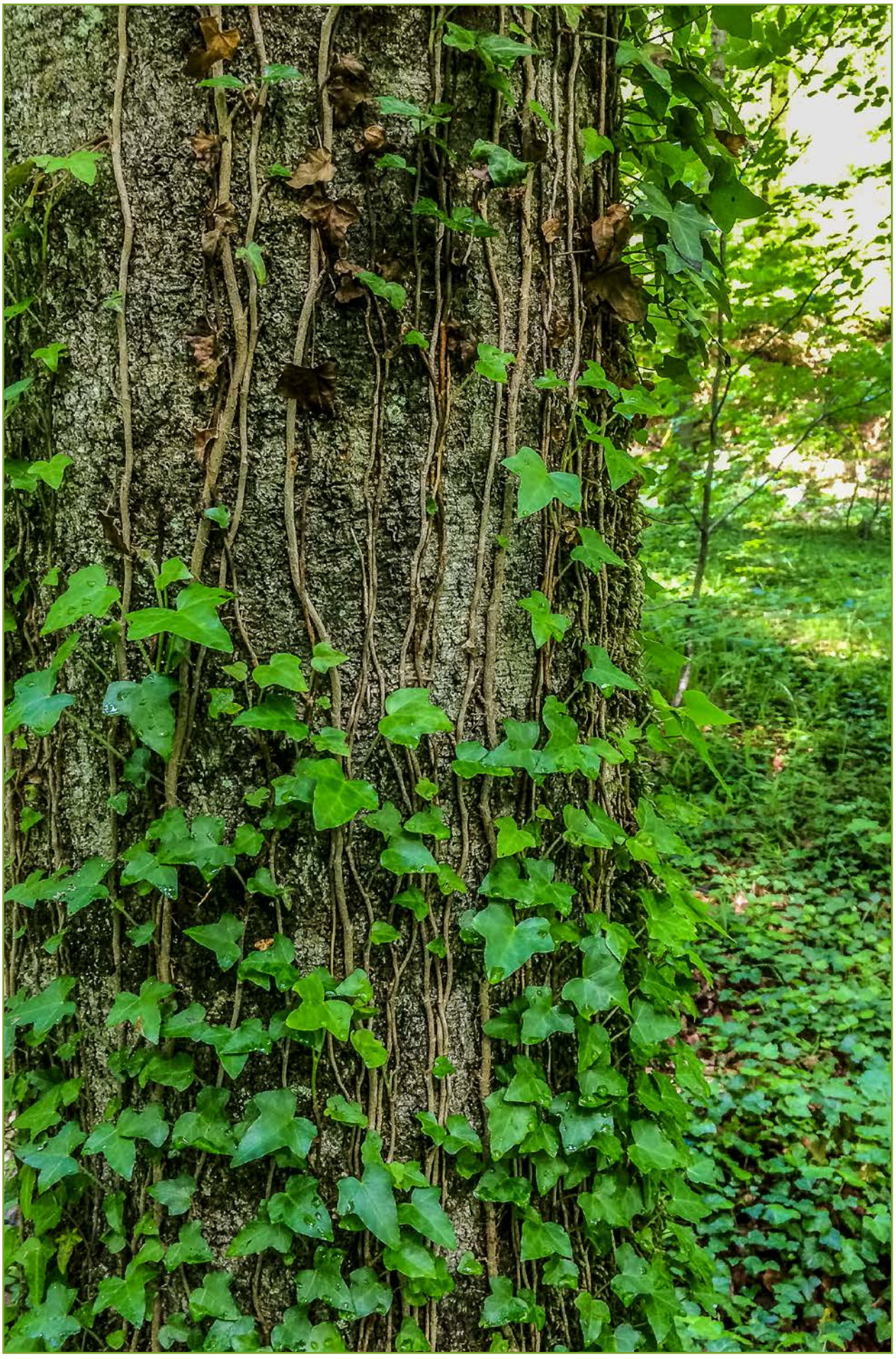
- **Sustainable Tourism and Wilderness:** The sustainable tourism experts of the European Wilderness Society are working closely with Ecological Tourism Europe, to develop new innovative sustainable tourism concepts and projects to be made available to the partners of the European Wilderness Network.

- **Personal visits:** Personal visits free of charge from the European Wilderness Society management and Wilderness team. During these visits of the European Wilderness Society will support the partner in identifying the Wilderness strengths, weaknesses, opportunities and threats, using the standards of the European Wilderness Quality Standard Audit System. Should shortcomings be found, the European Wilderness Society will develop conjointly with the Network Partner an action plan with workshops and meetings to help and overcome these shortcomings.

- **Project partners:** Opportunity to become an official project partner in one of the European Wilderness projects of the European Wilderness Society. Also, it is possible to jointly development new projects in support of the Network Partner and Wilderness concept internationally.

- **Research partners:** Inclusion to an exclusive list of preferred locations for Wilderness research for international BSc and MSc students.

- **Access to Dropbox:** Access to European Wilderness Society Dropbox, containing all relevant documents, logos and examples that will support the Network Partner.



3. Wilderness

3.1. Value of the European Wilderness

Wilderness represents a vital element of Europe's natural and cultural heritage. In addition to its intrinsic value, it offers the opportunity for people to experience the spiritual quality of nature in the widest experiential sense – beyond mere physical and visual attributes, and in particular its psychological impact.

European Wilderness also provides important economic, social and environmental benefits, including ecosystem services, for local communities, landholders and society at large.

3.2. Wilderness functions

Wilderness performs several functions more efficiently than in modified landscapes. Among these are:

- Conserving natural processes.
- Securing evolutionary genetic potential.
- Conserving biodiversity, especially large herbivores, top predators and scavenger communities.
- Protecting essential ecosystem services.
- Connecting landscapes.
- Capturing and storing carbon dioxide.
- Building scientific knowledge and understanding of natural processes.
- Inspiring people.

3.3. Wilderness in Europe

The Wilderness concept has gained considerable momentum during the last 15 years. A milestone occurred when the European Parliament Resolution on Wilderness in Europe[1] was adopted in 2009. In brief it states that the European Commission must:

- Develop a clear definition of Wilderness.
- Mandate that the European Environment Agency and other relevant European bodies map the last Wilderness' in Europe.
- Undertake a study on the values and benefits of Wilderness protection.
- Develop a Wilderness strategy.
- Expand Wilderness and manage rewilding areas.
- Promote the values of Wilderness and launch information campaigns to raise awareness-about Wilderness and its significance, working together with NGOs & local communities.

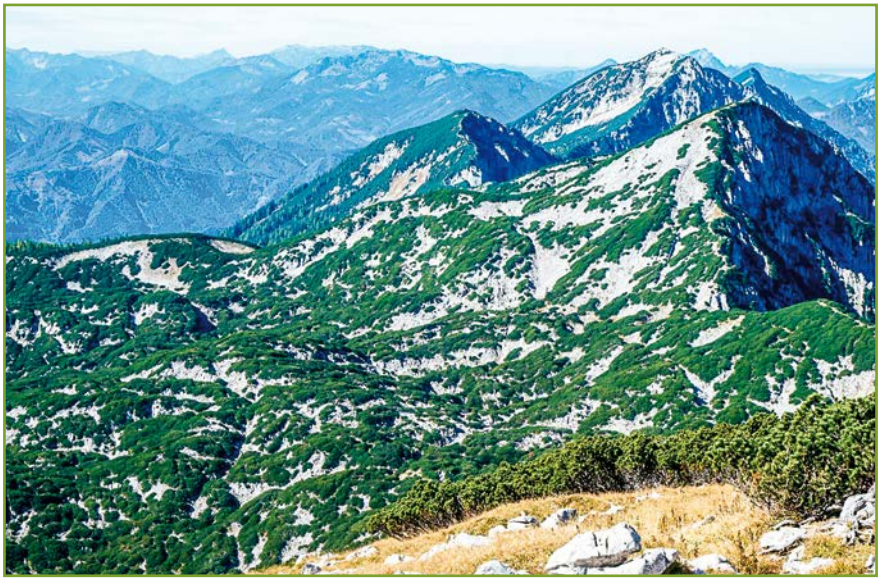


Fig. 7: The Wilderness concept has gained considerable momentum in Europe during the last 15 years. Kalkalpen Wilderness, Austria.

3.4. European Wilderness Society

The European Wilderness Society is a Pan-European, Wilderness and environmental advocacy organisation whose mission is to identify, designate, steward and promote European Wilderness in order to support their long-term existence and further development and restoration. The European Wilderness Society is an international organisation with decades of experience with Wilderness conservation in Europe. The European Wilderness Society is a member of a number of European organisations such as Wild Europe, UNEP, UNESCO, etc.

[1] *Wilderness in Europe. European Parliament resolution of 3 February 2009 on Wilderness in Europe (2008/2210(INI))*

3.5. European Wilderness Network

Growing demand for more Wilderness in Europe has led us to the creation of the European Wilderness Network, showcasing some of the finest Wilderness in Europe. This system includes the best European Wilderness sprinkled from the Mediterranean up to the Arctic Circle, from the Atlantic coast to the Ural Mountains. All members of the European Wilderness Network have been verified according to the European Wilderness Quality Standard and Audit system, guaranteeing full compliance with a common set of Wilderness principles, criteria and indicators.

Fig. 8: European Wilderness Network 2018.

4. Audit Team and Itinerary

4.1. Audit Team

Mr. Vlado Vancura; Lead Wilderness auditor
Field of expertise: Wilderness in Europe; Wilderness management; Wilderness and local Stakeholders; Wilderness and tourism use; and implementation of European Wilderness Quality Standard and Audit System.

Max Rossberg; Legal auditor
Field of expertise: Management plans, visitor management, legislative framework; and educational programmes

Ms. Iryna Shchoka
Field of expertise: Local expert and logistic support

Ms. Marjorie Dulom
Field of expertise: Large Carnivores expert

Bodo Rossberg; Report developement
Field of expertise: Report developement and layout

Host team
Mykola Rybak, Director of Carpathian Biosphere Reserve
Ruslan Gleb, Senior Scientist at Carpathian Biosphere Reserve
Fedir Hamor, Yuriy Berkela, Vasil Pokynchereda, Yaroslav Dovhanych, Carpathian Biosphere Reserve staff

Uholka-Shyrokyy Luh Wilderness Staff
Vasyl Uhlyai, Chief Wilderness Ranger, Mala and Velyka Uholka
Vasyl Les'ko, Wilderness Ranger, Mala Uholka
Vasyl Khymynets, Wilderness Ranger, Mala Uholka
Ivan Krichfalushiy, Wilderness Ranger, Velyka Uholka
Yurash Mykola, Wilderness Ranger, Velyka Uholka
Yuriy Midyanka, Wilderness Ranger, Shyrokyy Luh
Petro Pokovba, Wilderness Ranger, Shyrokyy Luh

Uholka-Shyrokyy Luh Wilderness Lodging
Mala Uholka ranger office
Velyka Uholka Sribny Ray
Shyrokyy Luh ranger office

4.2. Verification itinerary

- Data collection: September 2016 – June 2017
- Site audit: Monday 29th June to 5th July 2017
- Data completion and verification: June - July 2017
- Preliminary report, writing, editing and layout: July - October 2017
- Final report writing, editing and layout: October 2017 – February 2018
- Final report printing and presentation: February 2018 – September 2018

4.3. Site assessment itinerary

Monday 29th May

Arrival of Iryna Shchoka, Vlado Vancura and Marjorie Dulom at the headquarters of the Carpathian Biosphere Reserve in Rakhiv. Internal meeting with officials to discuss and arrange logistical details of the forthcoming verification.

Discussed issues: Areas that will be verified, accommodation arrangements within the Carpathian Biosphere Reserve, Uholka-Shyrokyy Luh Wilderness and logistics, notably transportation, provisions and the guides for the duration of the stay.

Presentation of the principal management documents, maps, history and vision of the Wilderness management. Recent and current projects relevant to Wilderness management (e.g. management of the core zone and the buffer zone, history of human use, ecological linkage with the surroundings and other areas of the Carpathian Biosphere Reserve).

Fig. 9: Wilderness Ranger Vasyl Khymynets has 42 years of experience at Carpathian Biosphere Reserve

Tuesday-Wednesday 30th-31st May

Fieldtrip.

Issues discussed: legal framework of the Special Protected Area, property ownership and the history of the valley, habitats in the Wilderness zone, traditional and current pasture/meadow management in the park and in Wilderness zone, game-management and grazing rights.

Thursday - Friday, 30 - 31 July

Two-day trip (Vlado Vancura, Iryna Shchoka, Marjorie Dulom) in the Mala Uholka which is located on the southern slopes of the Kicerely and Mincol Mountains. Mala Uholka is situated on the Northern outskirts of the Mala Uholka village. The trips were guided by the local Wilderness rangers Vasil Lysko and Ruslan Gleb.

Lodging was at the local ranger office near the village of Mala Uholka.

Day 1: Mala Uholka hiking trail - Kicerely office, Druzhba cave, the karst bridge, Kicerely office.

Discussed issues: type of human extraction in the anthropogenic zone, sustainable tourism, history of logging, local farming and grazing situation, fauna and flora listed in Red Book, large herbivores and feeding stations, expansion of the core zone, Mala Uholka River.

Day 2: Kicerely office, core zone up to Mincol Mount and biosphere boundaries. (Vlado Vancura, Marjorie Dulom, Ruslan Gleb and local ranger Vasyl Lysko).

Discussed issues: Expansion of the core zone, grazing and current issues, poaching and hunting regulations, endemic and invasive flora species, monitoring and tools in use.

Thursday-Friday 1st-2nd June

Two-day trip (Vlado Vancura, Marjorie Dulom) in Velyka Uholka guided by Ruslan Gleb and local rangers. Velyka Uholka is located on the southern slopes of the Kicerely and Mincol Mountains. It is situated on the Northern outskirts of the Velyka Uholka village. The trips were guided by the local Wilderness rangers Vasil Vasiljevic, Ivan Krichfalusik and Ruslan Gleb.

Lodging was at Sribny ray at a guest house approximately 7 km from the Velyka Uholka village, at the border of the Uholka-Shyrokyy Luh Wilderness where the main tourist trail enters the Wilderness.

Day 1: Velyka Uholka Trail: Velyka Uholka office checkpoint, Kamyaniy river, Hrebin limestone rock, Kolyba area, Molochnyi kamin cave, Velyka kopytsya and Kamyaniy waterfalls, Velyka Uholka River. The trail ended at the lodging place in Sribny ray.

Discussed issues: Local fauna and flora, sustainable tourism, old human extractions (mining, logging), maps and available information, history of this area (archaeology, palaeontology and geology).

Day 2: Velyka Uholka Trail: Velyka Uholka office checkpoint, core zone up to Mincol Mount and biosphere boundaries, Velyka Uholka River. The trail ended at the lodging place Sribny ray.

Discussed issues: Expansion of the core zone, grazing and current issues, borders, local fauna and flora, history of this area.

Saturday-Sunday 3rd-4th June

Two-day trip in the Shyrokyy Luh Valley (Vlado Vancura, Ruslan Gleb, Marjorie Dulom) situated on the East of the Uholka massif. Meeting with local officials of the Uholka-Shyrokyy Luh Wilderness in Shyrokyy Luh village. Quick introduction to the Wilderness Audit main objectives and common consultation on logistics. Discussion over maps and local knowledge.

Lodging was at the local ranger office, at the border of the Uholka-Shyrokyy Luh Wilderness.

Day 1: Meeting with local officials, anthropogenic and buffer zones, Shyrokyy Luh valley. Guided by Ruslan Gleb and two local Wilderness rangers Jury Midjanka and Petro Pokovba

Discussed issues: Local fauna and flora, grazing impact at borders of the Uholka-Shyrokyy Luh Wilderness, tourism, clear cuts and logging in the surrounding, Shyrokyy Luh river.

Day 2: From the local office to the Wilderness zone, throught the dense beech forest up to the tree-line and higher up to Poloniny to the peak Scerban.

Discussed issues : biodiversity of Shyrokyi Luh, endemic fauna and flora, mushroom diversity, phenology, wind fall in the valley, accesibility of the Shyrokyy Luh watershed and intesity of use above the tree line, impact of grazing and tourism as well as implications of having a clear view of the general area of Shyrokyy Luh valley.

Monday 5th June

Summary of the Field Wilderness assessment. Future cooperation with other members of the European Wilderness Network regarding knowledge exchange, research and monitoring. Compatibility of Wilderness definition with situation in Uholka-Shyrokyy Luh Wilderness. Interpretation of Wilderness in other languages and legal frameworks of Wilderness in Europe and Ukraine.

Closing meeting with local rangers Jury Midjanka and Petro Pokovba. Transport to Synevyr National Nature Park with Vasil Uhlyay, Chief Wilderness Ranger, Mala and Velyka Uholka.

Fig. 10: Twelve day audit in Mala Uholka guided by local experts and rangers.

Fig. 11: The Shyrokyy Luh Wilderness Audit and Field team

Fig. 12: The field Wilderness Audit team head through the dense beech forest up to the tree-line and above to poloniny.

5. Carpathian Biosphere Reserve

The Carpathian Biosphere Reserve is well known due to its importance for the conservation of the largest old-growth beech and conifer forests in Europe. It is one of the largest and most important protected areas in Ukraine. Similarly, Uholka-Shyrokyy Luh Wilderness is well known due to being the largest old-growth beech forest in Europe.

5.1. Introduction

The Carpathian Biosphere Reserve is located in the eastern part of Carpathian Mountains and consists of several massifs. Uholka-Shyrokyy Luh Wilderness is one these massifs and creates a large contiguous piece of wild land. It includes several important habitats types, such as conifers, mixed and broadleaf forest, mountain creeks and rocks.

Fig. 13: The 7 117 ha Uholka-Shyrokyy Luh Wilderness is part of the Carpathian Biosphere Reserve.

The Carpathian Biosphere Reserve is protecting the remaining patches of the original Carpathian ecosystems, such as foothill oak-groves, mountain beech, mixed and spruce forests, subalpine and alpine meadows, mossy forest formed by pine-alder and rocky-lichen landscapes. The area hosts a wide diversity of landscapes and provides a unique experience for visitors.

The 7 117 ha Uholka-Shyrokyy Luh Wilderness is part of the Carpathian Biosphere Reserve, located in western Ukraine. Uholka-Shyrokyy Luh Wilderness is firmly imbedded in the Carpathian Biosphere Reserve. The Carpathian Biosphere Reserve is located in the eastern parts of the Zakarpattia Oblast. Administratively, the Carpathian Biosphere Reserve is located in four districts of Zakarpattia Oblast, Ukraine.

Uholka-Shyrokyy Luh Wilderness preserves the largest area of unique old-growth beech forest in Europe as well as the natural state of Carpathian mountain landscapes. The Carpathian Biosphere Reserve includes four additional large areas with Wilderness potential: Svydovec, Chornohora, Maramorosh and the Kuziy-Trybushany WILDForest, which is already a member of the European Wilderness Network.

Uholka-Shyrokyy Luh Wilderness represents an outstanding example of undisturbed temperate beech forests and provides a sample of pure stands of the European beech. The area contains a large genetic reservoir of beech, on which many species are dependent and can be associated with in this forest habitat. The Uholka-Shyrokyy Luh Wilderness is part of the UNESCO World Heritage Site – Primeval Beech Forests of the Carpathians and Other Regions of Europe.

The Uholka-Shyrokyy Luh Wilderness also includes the 7 117 ha Uholka-Shyrokyy Luh WILD Forest and 3 WILDRivers – the upper watersheds of Mala Uholka River (7 km), Velyka Uholka River (8 km) and Shyrokyy Luh River (9 km).

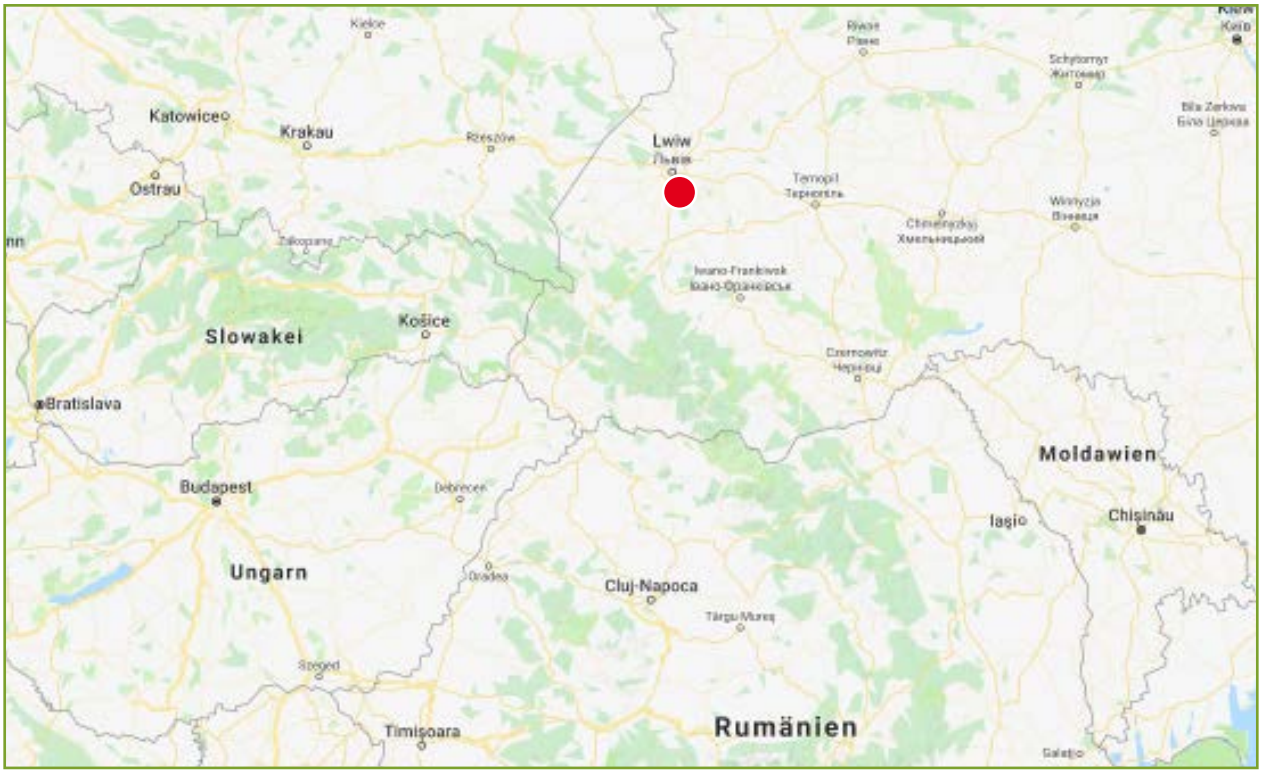


Fig. 14: Location of the Carpathian Biosphere Reserve, Ukraine.

Table 3: Carpathian Biosphere Reserve

Wilderness information	
Protected area	Carpathian Biosphere Reserve
Wilderness	Uholka-Shyrokyy Luh Wilderness
Wilderness Quality Standard	Platinum
Country	Ukraine
Size of the Protected Area	57 880 ha
Size of the Wilderness	7 117 ha WILDForest and three WILDRivers – upper watersheds of Mala Uholka River (7 km), Velyka Uholka River (8 km) and Shyrokyy Luh River (9 km).
European Wilderness Quality Standard Audit	2017
Wilderness Uniqueness	Large contiguous area of old-growth beech and mixed forest, favourable habitat for wolf, bear and many other rare species.
Number of visitors per year to the protected area	approx. 20 000
Number of visitors per year to the Wilderness	approx. 1 000

History of the Carpathian Biosphere Reserve

The Transcarpathia region is the south-westernmost corner of Ukraine. The prefix "Trans-" refers to the fact that the region is not on the Kyiv side of the Carpathian Mountains but across the range on the western side.

Transcarpathia borders with Romania, Hungary, Slovakia and Poland. For many centuries, the area was part of the Austro-Hungarian empire. Its national allegiance changed six times during the 20th century. The area has always had close relationships with its western neighbours.

The region's borders changed so frequently over the centuries that industrialisation and intensive forest use set in relatively late. For centuries, much of the mountain forest remained untouched. Only in the 18th century did German immigrants and Austrian woodcutters settle in this region by the Habsburgs, and timber from conifers was rafted down the larger rivers. But remote beech forests, like Uholka or mountain forests without any suitable water stretches for rafting, were spared for a long time, sometimes even until the 20th century. Other mountain forests were kept as royal hunting grounds and were not used for timber. The first forest reserve in Transcarpathia was established in 1908.

Fig. 15: Uholka-Shyrokyy Luh Wilderness represents an outstanding example of spontaneously developed beech forests.

These circumstances have made it possible for extensive remnants of old-growth forest to persist in Transcarpathia until today. Large parts of these old-growth forest are now protected within the Carpathian Biosphere Reserve, which was established in 1968.

The need to protect these old-growth forests was raised at the beginning of the 20th century, when several forest reserves in Chornohora and the Maramorosh Mountains were established.

The activities of scientists in the Ukrainian Carpathians were particularly stimulated after the Second World War. In 1949, the protection of 3 900 ha of the valuable forest massif was established on the northern slopes of the Chornohorskyy range.

In 1958, the Southern slopes of Krasna mountain, the Uholka massif and the Shyrokyy Luh floristic reserve were also classified as protected areas.

The extraordinarily high biodiversity on the southern slopes of Krasna Mountain led to the protection of the Mala and Velyka Uholka River basins, a territory of 4 600 ha, being established in 1958. In 1969, Shyrokoluzhanskyy floristic reserve, with a size of 5 644 ha, was established in the Luzhanka River basin. These were the preconditions for the later establishment of a biogeographically representative reserve in the region of the Ukrainian Carpathians to be formed.

In 1968, the Ukrainian government enlarged Shyrokoluzhanskyy floristic reserve to the size of 12 600 ha. In the following 30 years, the territory of the reserve was enlarged several times (1980, 1990, 1993, 1997, 2010).

Natural Features and Biodiversity

The Carpathian Biosphere Reserve is well known for its high natural biodiversity. More than 1000 species of vascular plants, 64 species of mammals, 173 species of birds, 9 reptile species, 13 species of amphibians, 23 fish species and all together more than 10 000 vertebrate animal species are protected in the reserve. The area represents the best-preserved ecosystems of the Carpathian and therefore serves as a refuge for many rare and threatened plant and animal species. 64 species of plants and 72 species of animals are listed in the Red Data Book of the IUCN and Ukraine, and in the European Red List.

Fig. 16: The Carpathian Biosphere Reserve is a member of the UNESCO World Heritage Site "Primeval Beech Forest of the Carpathians and the Ancient Beech Forest of Germany" (1993, 2011).

The main cultural values include the Hutsul folklore, monuments of wooden architecture, historical settlements of local people and traditional mountain farming practices.

The Carpathian Biosphere Reserve consists of eight isolated regional units – massifs - located at an altitude of between 180 - 2061m a.s.l. in the central and eastern sectors of the Ukrainian Carpathians. This territorial structure of the Carpathian Biosphere Reserve represents the wide spectrum of landscapes and biogeographical diversity of the Eastern Carpathians.

These wide spectrums of landscapes represent all natural and climatic zones of the Ukrainian Carpathians. The lowest point of the reserve is in the Narcissi Valley at an altitude of 170 m a.s.l. The highest point is Mt. Hoverla (2 061 m), which is Ukraine's highest peak.

Additional high peaks of the area include Chornohora (2061 m), Marmaroskiy crystalline massif (1946 m), Svydovets (1883 m) and Gorgany (1836 m).

Fig. 17: Layers of limestone and flysch - sandstone, siltstone and mudstone – prevail in geological structures.

Geology and Geomorphology

The Ukrainian part of the Eastern Carpathians, like the whole Carpathian arch, is part of the Alpine geosynclinals belt.

In geological structures, the Carpathian Biosphere Reserve prevails the layers of limestone and flysch - sandstones, siltstones and mudstones - and islands of crystalline schists occur.

The relief of the Carpathian Biosphere Reserve formed because of the fewer resistances of the flysch rocks against denudation – this has caused the typical smoothed relief forms of the Carpathians. The hard-crystalline rocks of the Marmaroskyy massif have determined the strongly broken relief of this area with its deep gorges, sharp ridges and summits.

Evidence of glaciation, such as glacial cirques, U-shaped valleys and moraines, are represented in Chornohora, Svydovets and Marmarosh massifs.

Habitats

The cluster type of the Carpathian Biosphere Reserve has caused a large range of biogeographical and landscape representation, which has determined a wide spectrum of habitats in this territory. The whole complex of altitudinal zonality is represented from the foothill meadows and oak-groves to the alpine zone with meadow and rocky-lichen landscapes.

Forest Habitats

The territory of the Carpathian Biosphere Reserve is dominated by forest vegetation, and approximately 90% of the reserve is covered with forest. Meadow covers an additional 5% of the territory in the lowland flood-plains of the massif, "Valley of Narcissi", and in the upland area and forest edges. The remaining territory is covered by rocky outlets, stony areas, rivers and streams.

A considerable percentage of the forest in the Carpathian Biosphere Reserve is composed of old-growth forest. There are more than 25 tree species in the forest areas, of which 8 species can be traced to the forest formation. The oak, hornbeam-oak, oak-beech and beech-oak forests are spread in the flat and warmest part of the Carpathian Biosphere Reserve.

Oak forest

The oak forests are formed by durmast oak (*Quercus petraea*), occasionally by Quercus polycarpa and Quercus dalachampii. In the higher elevation the oak is mixed with beech (*Fagus sylvatica*). The oak forests in and around the Carpathian Biosphere Reserve are located in the warmest regions. The oak-beech and beech-oak forests grow in the Kuziy massif on elevations between 360 - 630 m (Kuziy-Trybushany WILDForest). The most widespread associations are: Fageto-Quercetum petraeae asperulosum and Quercetum petraeae-Fagetum luzulosum luzuloidae.

Beech Forest

In higher altitudes, the vitality of beech is increasing. In optimal ecological conditions, it will form the dominant communities.

Pure beech forests are widely represented in all protected mountain massifs. They form almost the entire coverage in the Uholsko-Shyrokoluzhanskyy massif (Uholka- Shyrokyy Luh WILDForest); prevail in the Kuziy massif (Kuziy-Trybushany WILDForest) and form a considerable part in the Maramoroskyy and Svydovetskyy massifs.

In less favourable climatic conditions, beech forms mixed stands of trees, which are represented, to a certain degree, in all protected mountain massifs. The majority of the Uholka-Shyrokyy Luh Wilderness is covered by Piceeto-Abieto-Fagetum asperulosum, Abieto-Piceeto-Fagetum, Fageto-Abieto-Piceetum oxalidosum. The fir-beech forests with Abies alba, represented by Abieto-Fagetum oxalidosum, are rarely found in the territory.

Old-Growth Beech Forest

Old-growth beech forest is part of a globally significant natural heritage, and The Uholka-Shyrokyy massif is one of the largest contiguous old-growth beech forests in Europe.

Beech is a shade-tolerant tree, and the old-growth beech forests have a thick closed canopy. Once the beech is present, other species have difficulties to overpass the beech, however, in higher altitudes many other species become present, notably the sycamore-beech forests or the grey alder along the rivers. The ash, broad-leaved lime and junipers are also present in Uholka-Shyrokyy massif (Uholka-Shyrokyy WILDForest).

Broken and dead trees is a key habitat feature of old-growth beech forests, and forms ideal ecosystems for numerous fungi, moss and lichens. The proportion of dead wood in the Uholka-Shyrokyy massif (Uholka-Shyrokyy WILDForest) is approximately 15%, and plays a significant role in maintaining species diversity. The average age of the beech trees can reach 250 years.

Most European old-growth forests are not larger than 50–100 ha. Therefore, the old-growth beech forest located in the Uholka-Shyrokyy Luh Wilderness, a contiguous area exceeding 1000 ha, is rare.

Old-Growth Spruce Forest

Above the beech forest, natural spruce forests (*Piceetea abietae*) occur. These forests occupy the highest altitude of the forest belt.

The climax spruce stands are growing in Chornohora, Svydovets and Maramoroshyy massifs. They are mainly represented by Piceetum oxalidosum, Piceetum polytrichosum, Piceetum myrtillosum.

Fig. 18: The need to protect the old-growth forests was raised at the beginning of the 20th century.

Subalpine and Alpine Zone

The subalpine and alpine meadows contain fragments of dwarf pine (Pinis mugo) and are located above the forested zone. The climax communities of Mugheta, Duschekieta and Junipereta sibiricae are spread in the subalpine vegetation zone of Chornohora and Maramorosh. Rare communities with prevailing Rhododendron kotschyi, Salix herbacea, Salix retusa, as well as tall herbage species of Adenostyles alleariae and Cirsium waldschteinii are typical here.

In higher altitudes, the subalpine and alpine meadows consist of fragments of dwarf woodlands, which are dominated by beech.

Flora

The main floristic diversity of the Carpathian Biosphere Reserve is concentrated in the lowland. Due to the thick and dense canopy of the trees, most flower species can be observed during spring time, such as snowdrops or yellow wood anemone.

Over 500 plant species are found in the Uholka-Shyrokyy Luh Wilderness. 30 species are considered rare, such as the Russian belladonna, and 64 species are on the Red List of Ukraine.

In Uholka-Shyrokyy Luh Wilderness, narcissus is growing in areas close to ponds and the subalpine zone contains numerous rare herbaceous plants.

There are also over 260 species of mushrooms in the Carpathian Biosphere Reserve.

The last complex flora inventory of the Carpathian Biosphere Reserve was conducted in 1995-1996, before the reserve was expanded in 1997. During the enlargement, some floristically important areas, such as the Volcanic Carpathians and the upland part of the Svydovets ridge, were added to the reserve, which have significantly enriched the Carpathian Biosphere Reserve.

Fig. 19: There are over 500 plant species and 260 fungi species in the Uholka-Shyrokyy Luh Wilderness.

Fauna

The outcome of the last fauna inventory in the Carpathian Biosphere Reserve confirmed the presence of a wide variety of ecosystems with many rare species. The area hosts more than 100 protected and endemic species.

More than 2 400 different species have been listed, consisting of 14 classes of 5 types, including amphibian (13), reptilian (9), avian (172), mammalian (64).

Fauna in the Beech Old-Growth Forests

The fauna of the old-growth beech forests in the Carpathian Biosphere Reserve is represented by "taiga" species, such as Lynx lynx, Strix uralensis, Dryocopus martius, Pyrrhula pyrrhula as well as other species typical for broad-leaved forests. These are, for example, Turdus merula, Dendrocopos medius, Dendrocopos leucotos, Picus canus, Felis silvestris, Sus scrofa, Salamandra salamandra.

Typical species of the Uholka-Shyrokyy Luh Wilderness are Cervus elaphus, Martes martes and Buteo buteo, Neomys anomalus, Mustela erminea, Lutra lutra, Ciconia nigra, Triturus montandoni or Ciconia nigra. These are important indicative species for undisturbed old-growth forests. Additionally, ten varieties of woodpeckers live amongst these old trees.

Almost 20 species of bats can be found in the Uholka-Shyrokyy Luh Wilderness, 10 are on the Red List of Europe, including the mouse-eared bat and the long-eared bat.

Small ponds in the subalpine zone are the home of rare species of newts, including the Carpathian newt (Lissotriton montandoni) as well as the crested newt (Triturus spp.) and salamanders (Salamandra spp.). All these can be found in high numbers all over the Uholka-Shyrokyy Luh Wilderness and their presence is an excellent sign of the quality of the forest and the ecosystems.

Insects in Uholka-Shyrokyy Luh Wilderness are represented by the typical mesophyll Middle-European species. Rare species are among them, such as Lucanus cervus, Rosalia alpine or Cerambyx cerdo.

Fish species, such as Salmo trutta m. fario, Cottus gobio or Cobitis taenia can be found in the cold mountain rivers. The tributaries of the Tysa river are home to species such as Hucho hucho and Thymallus thymallus.

Fauna in Mixed and Coniferous Forests

Typical but rare species in the mixed and coniferous forests are: Picoidus tridactylus, Turdus torquatus, Loxia curvirostra. This forest is also a good habitat for the Carpathian subspecies of Tetrao urogalus rudolfi, Lynx lynx and Ursus arctos.

The Chornohirskyy, Svydovetskyy and Maramoroskyy massifs provide good habitats for alpine and taiga species. At altitudes above 1 700 m, species such as as Chyonomis nivalis and Prunella collaris can be found.

The fauna of these massifs is represented by species typical for the forest zone of the Carpathians, such as Cervus elaphus montanus, Sus scrofa attila, Capreolus capreolus, Canis lupus, Strix aluco, Cinclus cinclus.

The rocky landscapes, in particular on northern expositions of the Maramoroskyy massif, host a number of peculiar species. Falco peregrinus, for example, which can be found only in

this part of the Carpathian Biosphere Reserve. Smaller falcons showing a preference for rocky sites, such as Falco subbuteo, Falco tinnunculus, occur in larger numbers. The nutcracker, Nucifraga caryocatactes, can be found here in the nesting period.

There are no mixed or coniferous forests in the Uholka-Shyrokyy Luh Wilderness.

Fauna in the Subalpine and Alpine Zone

The subalpine and alpine zones of the Maramoroskyy and Chornohirskyy massifs represent good conditions for Marmota marmota and Rupicarpa rupicarpa. These two species disappeared from the Ukrainian Carpathians in the first half of the 20th century. Consequently, their reintroduction will be of great importance for the stabilisation of the vulnerable subalpine and alpine ecosystems.

Water habitat

The water habitats of the Carpathian Biosphere Reserve are mainly represented by mountainous watercourses. Mountain streams are the most common water bodies, the only lowland river of the massif is in the Valley of Narcissi. A few small stagnant ponds can be found in the upland parts of the Reserve.

Four rivers run through the Ulhoka-Shyrokyy Luh massif: The Mala Uholka river, the Velyka Uholka river, the Luzhanka river and the Motsokyi river in the far East. These rivers provide habitats for very rare species, such as the rainbow trout and the Danube salmon (Hucho hucho).

Many ponds in the lowands of the reserve are home to numerous species of amphibians, invertebrates, birds, beetles, and water plants.

The main streams of the reserve are the Kamenskyi, the Hrebenskyi and the Polonskyi. These streams are of great importance for the forest ecosystem, as they supply food resources for many species, such as the white-throat dipper (Cinclus cinclus), and serve as a nursery for young amphibians and insects. Moreover, these streams are essential for the dynamics of the riparian areas, in particular its vegetation, which helps to secure the river banks. The wooden debris of this vegetation adds complexity to the stream beds, which improves the habitat for the fish present.

Three of the mountain streams are located in the watershed of Uholka-Shyrokyy Luh Wilderness: Mala Uholka WILDRiver, Velyka Uholka WILDRiver and Shyrokyy Luh WILDRiver.

Alpine Pastures and Hay Meadows

The old forests contain islands of alpine pastures and hay meadows, which are the result of intensive grazing in the last few centuries. These significantly raise the species and ecosystem diversity of the reserve. Species, like Soldanella hungaria and Disphasiastrum alpinum which are rare and Red-listed in Ukraine, can be found in these alpine meadows

Consequences of the intensive grazing in the last few centuries are still visible. For example:

- a lowering of the tree line for ca. 140-200 m and a replacement of mixed and coniferous forests by alpine pastures in some areas,
- a degradation of the alpine pastures resulting in a dominance of ruderal vegetation, such as Rumex alpinus, Urtica diotica and Nardus stricta.

Due to the economic situation and the changing life style in the country, grazing is decreasing these days. Grazing is not allowed on the territory of the Carpathian Biosphere Reserve.

5.2. Management of the Carpathian Biosphere Reserve

The mission of the Carpathian Biosphere Reserve is the protection of the natural complexes and the Carpathian biodiversity. This involves monitoring and research of nature and natural processes as well as the promotion of sustainable development in the region, in particular of the ecological education, eco-tourism and recreation opportunities.

Pressing issues for the Carpathian Biosphere Reserve are the restoration of the disturbed ecosystems to their natural state, the regulation of cattle grazing and the control of illegal cuttings and poaching. The preservation of cultural heritage and the promotion of sustainable development in the region are important task as well.

5.2.1. Structure of the Carpathian Biosphere Reserve

The Carpathian Biosphere Reserve consists of several separate parts. Administratively, the reserve is located in four districts of Zakarpattia Oblast. It is connected to the Carpathian National Nature Park in the East.

The Carpathian Biosphere Reserve consists of eight separate preservation massifs. Two of them are botanical reserves (zakazniks):

- Chornohora massif
- Svydovets massif
- Marmorosh massif
- Kuziy massif
- Uholka-Shyrokyy Luh massif
- Narcissus Valley massif
- Chorna Hora botanical massif - zakaznik (Black Mountain)
- Yulivska Hora botanical massif - zakaznik (Julius Mountain)

Fig. 20: The most important task of the Uholka-Shyrokyy Luh Wilderness management team is to observe and study the dynamics of spontaneous natural processes.

- The Chornohora massif is located at the southern slope of the Chornohora, the highest mountain in the Eastern Beskids and the Ukrainian Carpathians. The size of this massif is 16 375 ha.
- The Svydovets massif is located in the highest region of the Svydovets Mountains at altitudes between 600– 1883 m. The size of this massif is 6 580 ha.
- The Marmorosh massif is located at the northern slopes of the Rakhiv Mountains at altitudes between 750–1940 m. The size of this massif is 8 990 ha.
- The Kuziy massif is located at the southern slopes of the Svydovets Mountain at altitudes between 350-1409 m. The whole 4 925 ha massif is covered with forest.
- The Uholka-Shyrokyy Luh massif is located at the southern slopes of the Krasna and the Menchil Mountains at altitudes between 400 – 1280 m. The size of this massif is 15 580 ha.
- The Narcissus Valley massif is located in the Khustets river floodplain in the western part of the Khustsko-Solotvynska Valley at altitudes between 180–200 m.
- The Chorna hora botanical massif - zakaznik is located in the Volcanic Carpathians, on the Chornahora Mountain, which is a part of the Hutynskiy range. It was established to preserve oak, hornbeam-oak, oak-beech and beech-oak forests in 1974 and became a part of the Carpathians Biosphere Reserve in 1997. The size of this botanical zakaznik is 823 ha.
- The Yulivska Hora botanical massif - zakaznik is located at the slopes of the Yulivski Mountains in the Vyhorlat-Hutynskiy volcanic ridge. It was established to preserve oak local forests, which host many Balkan and Mediterranean species, and was established in 1974. It became a part of the Carpathians Biosphere Reserve in 1997. It is characterised by the warmest climate in the whole Ukrainian Carpathians. The size of this botanical zakaznik is 176 ha.

Each massif has a core zone, hosting potential Wilderness, which is surrounded by a buffer zone, often with a potential for Wilderness restoration and enlargement. These pieces of land are interconnected by forested land and pastures which do not belongs to the Carpathian Biosphere Reserve. This land is inhabited and used either by State Forestry or by local people, which are scattered over 25 villages, and is interweaved by hundreds of kilometres of roads (soil, gravel and partially asphalt). This area is used for commercial activities, such as forestry or grazing at alpine meadows (poloniny) above the tree line. In the last years, these poloniny are also used for intensive and commercially focused berry picking.

5.2.2 Zoning system

Zoning is the main management tool of the Carpathian Biosphere Reserve.

Zoning in Carpathian Biosphere Reserve

The area has four zones: the core zone, the buffer zone, the anthropic landscape zone and the regulated protection zone. This division helps to combine the needs of nature protection with the requirements of the local people.

In the core (A) zone, any management interferences into the course of natural processes are strictly forbidden. Only scientific and nature protection measures can be carried out in this zone. The number of visitors is strictly limited and controlled. Besides staff, only specialists and students from different scientific and research institutions are allowed to work here.

In the buffer (B) zone the management objective is to prevent any impact on the core zone, therefore management activities are strictly limited and controlled.

In the anthropic landscape (C) zone the management focuses mainly on the implementation of special measures that are aimed to regulate and limit the economic use of natural resources. Traditional uses of nature and recreation activities are allowed here. This zone is subject to continuous controls with clear regulations and limitations.

Besides these traditional zones, the Carpathian Biosphere Reserve has an additionally zone of regulated protected regimes (D zone). Its main task is to implement restoration measures in the disturbed natural complexes to lead them back to their natural state. Additionally, this zone provides certain economic values, such as firewood, timber and hay for the local people.

These zoning principles are also used when new areas are added to the Carpathian Biosphere Reserve.

Zoning in Uholka Shyrokyy Luh Wilderness

The European Wilderness Quality Standard and Audit System and the Uholka-Shyrokyy Luh Wilderness use different zoning systems. The European Wilderness Quality Standard and Audit System zoning system is based on the Definition of European Wilderness and Wild Areas whereas the Carpathian Biosphere Reserve and the Uholka-Shyrokyy Luh massif zoning system is based on Ukrainian legislations.

Uholka Shyrokyy Luh Wilderness is zoned according European Wilderness Quality Standard and Audit System.

The size and zoning of Uholka-Shyrokyy Luh Wilderness zone is identical with the size of the WILDForest and includes three WILDRivers: the upper watersheds of the Mala Uholka River (7 km), the Velyka Uholka River (8 km) and the Shyrokyy Luh River (9 km).

Land ownership

The land of the Carpathian Biosphere Reserve is owned by the Ukrainian State. The Carpathian Biosphere Reserve has direct management responsibility for 31 977 ha. The State Forest Service manages 25 913 ha of the reserve according to the instructions of the Carpathian Biosphere Reserve Administration.

The expansion of the Carpathian Biosphere Reserve core zone has been discussed by the officials for years. The current political processes and Ukraine's plan to join the European Union would likely pressure the Ukrainian Ministry of Environment to reconsideration the current zoning system as well as the expansion of the reserve's core zone, due to the redistribution of lands to their owners. The fact that the Ukraine was under Russian leadership for centuries followed by the communist's collectivisation in the 1930's, impacted 55% of the Ukrainian territory.

Management of Carpathian Biosphere Reserve.

The administration of the Carpathian Biosphere Reserve has an advanced Wilderness management, including strict non-intervention management, a zoning system, maps, ecological corridors to the surrounded areas, a Wilderness focused communication concept as well as Wilderness research and monitoring, and training programs.

The Carpathian Biosphere Reserve has a committed management team which is led by the director and their deputies. They all have a strong Wilderness vision and their systematic work is based on a wide range of research based analyses with a focus to maintain the unique Wilderness of the Ukrainian Carpathian Mountains.

In practise, the Carpathian Biosphere Reserve is led by a director working for the National State Agency for Protected Areas. They are seconded by deputies in charge of the field rangers, the scientific activities and the administrative matters.

The administration is organised in nine departments and manages four scientific laboratories: botanical, zoological, forestry and landscape research. Each laboratory is led by a deputy and a head of the office.
The museum of mountain ecology is located close to the main office in Rakhiv.

The most important task of the Carpathian Biosphere Reserve management is to observe and study dynamisms of spontaneous natural processes. The main administrative office of the Carpathian Biosphere Reserve is located in Rakhiv.

The Carpathian Biosphere Reserve is an institution for science and research in nature protection of international significance. It is subordinated to the Ministry of Ecology and Natural Resources of Ukraine and financed by state budget.

Management of Uholka-Shyrokyy Luh Wilderness
Non-intervention management is a main objective of the management concept of the Uholka-Shyrokyy Luh Wilderness. The creation of a core zone with no-interventional management has been an objective since the beginning of the Carpathian Biosphere Reserve. This approach has been fully reconfirmed recently and is in line with the European Wilderness concept and European Wilderness Quality Standard and Audit System.

Non-intervention management has a long tradition in this region, particularly since the Soviet era and the introduction of the concept of zapovedniks. The Ukraine is currently in a very challenging period due to its present political situation. The Ukrainian people are developing a modern European society and feel a responsibility to continue the strict protection of the core zone of the Carpathian Biosphere Reserve. The European Wilderness Society and the European Wilderness Network support this process by providing technical and communication support alongside international credit and visibility.

Due to the commitment of the entire management team, Uholka-Shyrokyy Luh Wilderness became a European Wilderness Society partner in 2015 and a member of the European Wilderness Network in 2017. Since then, the management has been working closely with the European Wilderness Society and on contributing to the implementation of Wilderness conservation.

Protection status

The field protection of the Carpathian Biosphere Reserve is secured by the team of forest rangers, which was created under the Decree of the Cabinet of Ministers of Ukraine “On the Ranger Service of protected areas of Ukraine”. These rangers have the status of a law enforcement body. The Carpathian Biosphere Reserve has 150 officers, chaired by the director. The Carpathian Biosphere Reserve is divided into eleven environmental units - Keveliv, Bohdan-Pertoske, Chornohirske, Kisvianske, Petros-Hoverlianske, Trybushany, Rakhiv-Berlybaske, Maramorosh, Uholka, Shyrokyy Luh and Narcissi Valley.

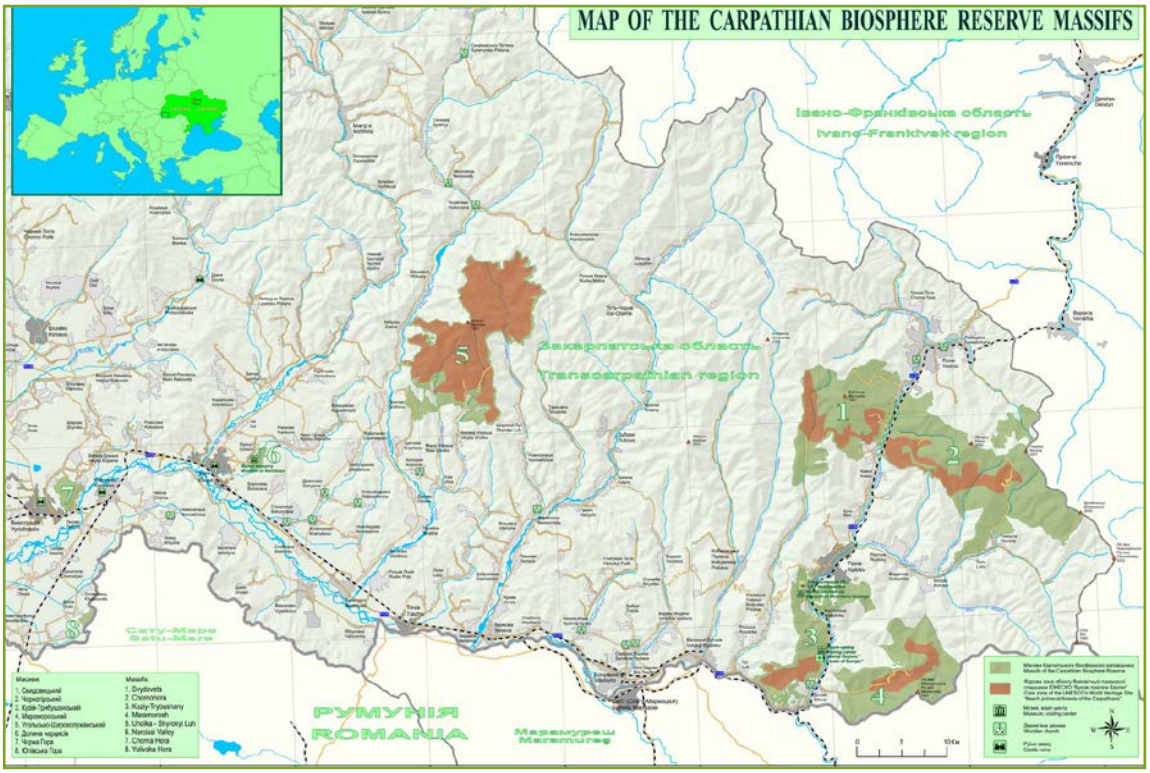


Fig. 21: Map of the massifs in the Carpathian Biosphere Reserve, Ukraine © Carpathian Biosphere Reserve

Each unit is divided into forest ranger districts with a forest ranger being responsible for the protection of the particular district. The entry to each unit is equipped with a check-in point and other special facilities. The task of the forest ranger is to control access to the unit and to support the implementation of research and monitoring. During periods with a high risk of fire, a day-and-night duty is in place.
The forest rangers regularly control the territory on specially determined routes.

Research and Monitoring

Research and monitoring is an extremely important task of the Carpathian Biosphere Reserve management. The focus of research and monitoring lies on natural ecosystem dynamics and on non-invasive monitoring methods. The reserve's management is committed to interfere as little as possible to the natural processes in the reserve.

Cooperation with Local People

There are 20 settlements situated in the surroundings of the Carpathian Biosphere Reserve, which are inhabited by more than 100 000 people. The 400 people living directly in the reserve are mainly engaged in animal husbandry and crop cultivation.

The Carpathian Biosphere Reserve administration creates conditions for the locals to maintain their traditional activities, such as collecting fire wood, grazing of cattle and sheep, mowing of hey, picking berries and mushrooms, within specially defined areas. Furthermore,

the management supports and promotes traditional practices to create job opportunities for locals and to implement projects on sustainable development.

Ecological Education

The reserve's administration produces an ecological journal "Zeleni Karpaty" (The Green Carpathians) and the Carpathian Biosphere Reserve Newsletter. Furthermore, the administration provides regular interviews on mass media channels, gives lectures and ecological lessons as well as educative excursions and organises summer camps and excursions for students.

The visitor centres and museum of the reserve provide information and interpretation programs to local people and visitors.

Facilities for visitors

The Carpathian Biosphere Reserve has several facilities for visitors including the Museum of Mountain Ecology and History of Traditional Nature Use in the Ukrainian Carpathians (Rakhiv), Ecological Education Centres, The Museum of Narcissus" (Khust) and "The Centre of Europe" (Dilove village).

There is a network of tourist information centres in the massifs; The Carpathian Highlands, the Primeval Beech Forests as UNESCO World Heritage Site, The Carpathian Trout, etc.

The wider area of the Carpathian Biosphere Reserve also provides 18 ecotourism trails, recreation zones and rest stations, a number of publications, and small hotels and hostels for visitors.

International recognition

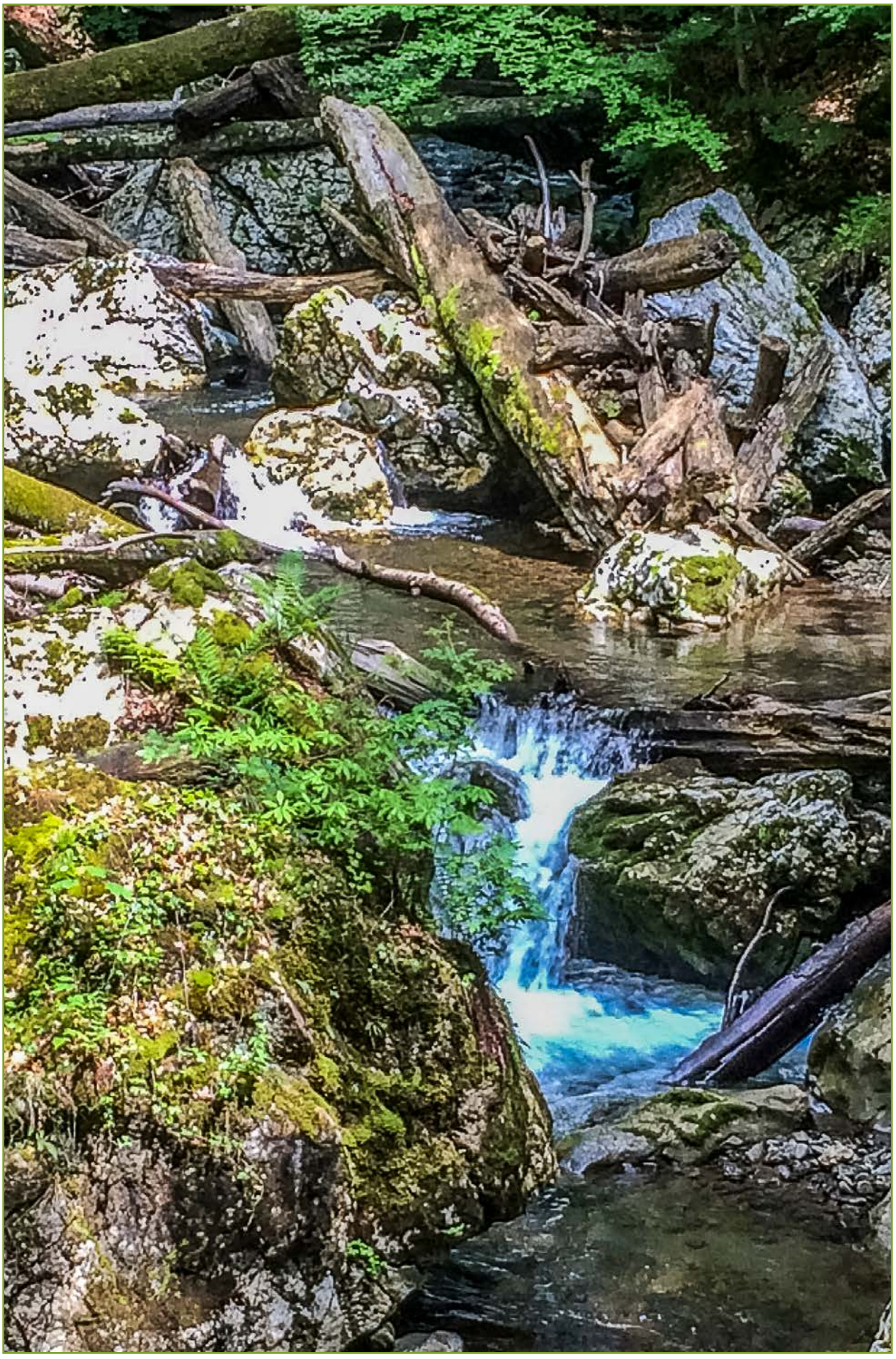
The Carpathian Biosphere Reserve is a member of:

- the UNESCO World Heritage Site "Primeval Beech Forest of the Carpathians and the Ancient Beech Forest of Germany" (1993, 2011)
- the UNESCO Biosphere reserve (1994)
- the European Diploma by Council of Europe (1997, 2002, 2007, 2012)
- the Carpathian Network of Protected Areas (1994)
- the European Wilderness Network (2017)

Fig. 22: The rivers provide habitats for rare species, such as the rainbow trout and the Danube salmon.

Fig. 23: Narcissus grow in wet meadowland in the Velyka Uholka.

Fig. 24: The main streams of the reserve supply food resources for many species.



6. Wilderness Internationally[1]

6.1. Global Wilderness

Globally, Wilderness is a natural environment that has not been significantly modified by human activities. It may also be defined as the most intact, undisturbed wild natural areas left on our planet, the last truly wild places that humans do not control and have not developed with modern infrastructure. The principle global Wilderness criteria are: size, intactness, human population density and biodiversity.

The primary objective of Wilderness is to protect the long-term ecological integrity of natural areas that are undisturbed by significant human activity, free of modern infrastructure and where natural forces and processes predominate. These are rare areas where current and future generations have the opportunity to experience unmodified nature.

Distinguishing Features of Global Wilderness

- Wilderness is free of modern infrastructure, development and industrial extractive activities, including but not limited to roads, pipelines, power lines, mobile phone towers, oil and gas platforms, offshore liquefied natural gas terminals or other permanent structures as well as mining, hydropower development, oil and gas extraction, agriculture including intensive livestock grazing, commercial fishing, low-flying aircraft etc., preferably with highly restricted or no motorised access.
- Wilderness is characterised by a high degree of intactness, containing a large percentage of the original extent of the ecosystem, complete or near-complete native faunal and floral assemblages, retaining intact predator-prey systems including large mammals.
- Wilderness areas have a sufficient size to protect biodiversity, to maintain ecological processes and ecosystem services as well as ecological refuge. They act as a buffer against the impacts of climate change and maintain evolutionary processes.
- Wilderness offers outstanding opportunities for solitude, enjoyed, once the area has been reached, by simple, quiet and non-intrusive means of travel (i.e., non-motorised or highly regulated motorised access where strictly necessary and consistent with the biological objectives listed above).
- Wilderness is free of inappropriate or excessive human use or presence, which will decrease Wilderness values and ultimately prevent an area from meeting the biological and cultural criteria listed above. However, human presence should not be the determining factor in deciding whether to establish a category Ib area. The key objectives are biological intactness and the absence of permanent infrastructure, extractive industries, agriculture, motorized use, and other indicators of modern or lasting technology.

[1] *https://www.iucn.org/theme/protected-areas/about/protected-areas-categories/category-ib-wilderness-area*

In addition, Wilderness also includes disturbed areas that are capable of restoration to a Wilderness state, and smaller areas that might be expanded or could play an important role in a larger Wilderness protection strategy as part of a system of protected areas that includes Wilderness, if the management objectives for those somewhat disturbed or smaller areas are otherwise consistent with the objectives set out above.

Where the biological integrity of a Wilderness is secure and the primary objective listed above is met, the management focus of the Wilderness may shift to other objectives, such as protecting cultural values or recreation, but only as long as the primary objective continues to be secure.

In many ways, Wilderness plays a similar role in the landscape/seascape to IUCN category II National Parks, in protecting large, functioning ecosystems (or at least areas where many aspects of an ecosystem can flourish). Their particular roles include:

- Protecting large, mainly untouched areas, where ecosystem processes, including evolution, can continue unhindered by human activities, including development or mass tourism;
- Protecting compatible ecosystem services;
- Protecting particular species and ecological communities that require relatively large areas of undisturbed habitat;
- Providing a "pool" of such species to help populate sustainably-managed areas surrounding the protected area;
- Providing space for a limited number of visitors to experience Wilderness;
- Providing opportunities for responses to climate change, including biome shift.

An issue for consideration is the fact that some Wilderness areas include livestock grazing by nomadic peoples and distinctions may need to be made between intensive and non-intensive grazing. However, this will pose challenges if people want to increase stocking density.

Fig. 25: Globally, Wilderness is a natural environment that has not been significantly modified by human activity. Banff Wilderness, Canada.

6.2. Wilderness in Europe

Wilderness is a vital part of Europe's natural heritage. This is underpinned by an ongoing trend towards the designation of Wilderness in Europe e.g. the UNESCO World Heritage Site Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe or recent initiatives to promote Wilderness (e.g. Wild Europe Initiative, European Wilderness Society, PAN Parks etc., Martin et al. 2008).

Europe is not a continent where Wilderness survived the increased human development in a scale and quality such as in Canada, Africa or the United States of America. After thousands of years of shaping the European landscapes, the primeval imagination of European Wilderness is hardly achievable.

It is apparent that European Wilderness as a conservation concept requires the reflection of the current natural and spatial conditions as well as the cultural context. Nevertheless, the European Wilderness concept builds on the existing IUCN Category Ia and Ib.

After that the main challenge becomes the implementation of the widely accepted and approved European Wilderness concept. In this concept, implementation means to combine the concept of the newly agreed Wilderness Definition with the existing network of European areas on the IUCN Category Ia and Ib List and the EU Wilderness Register List.

Wilderness in Europe is rarely established by law or administrative acts and is usually hidden as fragments in some existing protected areas scattered throughout the continent. The main features of these areas are that they have not been modified and that human activity is restricted. However, European Wilderness can be found in various stages of the Wilderness continuum.

Fig. 26: Wilderness in Europe is increasingly considered important for biodiversity, ecological equilibrium, as well as inspiration, and recreation. Berezinsky Wilderness, Belarus.

Wilderness is increasingly considered important for biodiversity, the ecological equilibrium, and also for solitude, inspiration, and recreation. In some European countries Wilderness is deeply valued for cultural, spiritual, moral, and aesthetic reasons. Increasingly more people believe that Wilderness is vital for human spirituality and creativity.

The team members of the European Wilderness Society have been developing the European Wilderness Network for several years. This unique network of Wilderness areas audited according to the European Wilderness Quality Standard has now exceeded the 300 000 ha barrier.

The European Wilderness Society's objective for 2020 is to have 500 000 ha and by 2030 1 000 000 ha of audited Wilderness meeting the European Wilderness Quality Standard.

6.3. Wilderness in Ukraine

Ukraine has a long tradition to protect Wilderness. The system of zapovednyks (IUCN quality standard 1a and 1b) has been developed and maintained since the Soviet era.

Today, Ukraine contains excellent examples of Wilderness. There are a number of ambitious protected areas in the country that aim to gain international recognition for their Wilderness. Many of these protected areas are large and include several important habitats types, such as conifers, mixed and broadleaf forest, alpine pastures and rocks, lowland and marine habitats.

There are already five Wilderness areas in Ukraine listed in the European Wilderness Network:

- Zacharovanyy kray Wilderness is embedded in the Zacharovanyy kray National Nature Park. The first Quick Audit was carried out in 2014 and the Full-Audit in 2015.
- Zacharovanyy kray WILDForest, an excellent example of a WILDForest, is partially embedded in the Zacharovanyy kray Wilderness and in Zacharovanyy kray National Nature Park. This area preserves the natural state of the beech forest in the central part of the Ukrainian Carpathian Mountains.
- Uholka-Shyrokyy Luh Wilderness is embedded in Carpathian Biosphere Reserve. The first Quick Audit was carried out in 2015 and the Full-Audit in 2017.
- The Velyka Uholka WILDRiver, the Mala Uholka WILDRiver and the Shyrokyy Luh WILDRiver are embedded in the Uholka-Shyrokyy Luh Wilderness and are excellent examples of unmodified Carpathian mountain rivers.
- Uholka-Shyrokyy Luh WILDForest is embedded in the Uholka-Shyrokyy Luh Wilderness. This forest is a hotspot for biodiversity dependent on spontaneous natural processes and ecosystem dynamics.
- Kuziy-Trybushany WILDForest is embedded in Carpathian Biosphere Reserve. The first Quick Audit was carried out in 2017.

- The Carpathian Biosphere Reserve includes three additional large areas with Wilderness potential: Svydovec, Chornohora, Maramorosh.
- Gorgany Wilderness, where the first Quick Audit was carried out in 2015.
- Synevyr Wilderness is embedded in Synevyr National Nature Park. The first Quick Audit was carried out in 2015.
- Hoverla Wilderness is embedded in Carpathian National Nature Park. The first Quick Audit was carried out in 2015.

Within Europe, the Carpathian Mountains are one of the most promising regions for Wilderness preservation and restoration. 19 000 km^2 of the Carpathians Mountains are on Ukrainian territory, corresponding to 10% of the total Carpathians Mountains range. Wilderness is an important tool in the protection of untouched areas in this ecoregion. However, Wilderness in the Ukrainian Carpathians is currently under threat due to extensive logging.

There are 27 Nature Preserves (zopovedniks) in Ukraine that should meet the IUCN 1a and 1b criteria. Additionally, some of the core zones, or at least parts of the core zones, of 8 Biosphere Reserves and 50 National Nature Parks should also meet the IUCN 1a and 1b criteria. For example, parts of the core zones in Synevyr National Nature Park and Carpathian National Nature Park.

Fig. 27: Limestone arch in Mala Uholka.

6.3.1. Zapovednyk

The Ukrainian word zapovednyk, meaning strict nature reserve, is also the word for Wilderness. Zapovednyk, is a territory that has exceptional natural values that have been protected from commercial exploitation to maintain their natural characteristics. A system of different types of protected areas has evolved in the last decades. The category of zapovednyk differs in

[3] *Kohler, Bernhard, Vančura, Vlado & Zika, Michael. Hohe Tauern West 2007. Wild Europe Initiative*

its quality standard, protection measures, the jurisdiction under which they serve, the size of their territory and the extent to which they are open to the public for interpretation, education and outdoor recreation.

The need to establish a system of strictly protected areas emerged more than 100 years ago as a result of the widespread and increasing intensive use of land for agriculture, the growth of large-scale exploitation of forests and minerals and the rapid industrialisation and urbanisation. The first Barguzinskyy Zapovednyk, at the Baikal lake, was created in 1916.

The total size of all protected areas in Ukraine, including zapovednyks, is approximately 2.8 million hectares, which represents 4.7% of the Ukrainian territory.

Zapovednyks and IUCN Standard

The term zapovednyk was established for protected areas with the goal of keeping these areas "forever wild". It is the highest degree of environmental protection and has restricted public access. Zapovednyks are ¨...sacred land, prohibited from disturbance, committed to protection…¨According to the management objectives, zapovednyks are compatible with the IUCN Protected Areas Categories System Category 1a, Strict Nature Reserve.

However, in practice zapovednyks protect more than just the natural value. This type of protected area also protects sites for their historical, cultural or archaeological value. Such sites function as important areas for research and education, thus they are also compatible with other categories within the IUCN Protected Areas Categories, in particular Category 1b, Wilderness, or Category 2, National Park.

The idea of Zapovednyks

The term zapovednyk has been used in the Soviet Union and is still in use throughout the Russian Federation and in some parts of the former Soviet republics today.

The theory behind the idea of absolute zapovednost (absolutely wild nature conservancy) implies eternal preservation of an extensive natural area and its absolute inviolability. This should be achieved by stopping any form of economic use in these natural sites and ceasing any intentional direct anthropogenic influence on zapovednyk nature. Therefore, zapovednost means preventing any economic activity from taking place in an area and minimizing direct anthropogenic impacts in zapovednyks.

The advocate of the zapovednost idea was D.K. Solovyev, who noted: "...in general it is impossible to achieve absolute zapovednost, even in zapovednyk, because sometimes it may result in an absurd situation. Some territories can be turned loose without any human interference but generally it is impossible to isolate a zapovednyk completely from external life/influences. It is only possible to weaken the influence of influences from the outside by attentive guard".

The idea of absolute zapovednost within the environmental school of thought is represented by both Russian and Ukrainian scientists, such as zoologists G.A. Kozhevnikov, D.K. Solovy-

ev, A.V. Zakharenko, and V.M. Yakushenko, V.V. Dokuchayev, botanists, I.P. Borodin and A.A. Yanata, anthropologist, D.N. Anuchin, geographer, V.P. Semyonov-Tien-Shanskiy, and game manager, F.R. Shtilmark.

The idea of zapovednyk highlights the method of non-intervention management as a necessary tool for the protection of 1.) natural processes, phenomena and events 2.) biological and landscape diversity, genetic pool of flora and fauna 3.) long term monitoring and scientific research.

How the idea of Zapovednyk can enrich Wilderness in Europe

In the last 25 years, Eastern Europe has been adopting nature conservation methods and standards from Western Europe. This process has resulted in the implementation of active management measures in Wilderness areas with a specific focus on the protection of a few selected threatened species or a particular biome or ecosystem.

Ukraine is on its way to join the European Union and perhaps has to adopt a different method of nature conservation than currently in use. However, there is still a chance to minimise the loss of untouched nature and to protect their Wilderness heritage. This can be achieved through a combination of experiences learned from Wilderness protection since the Soviet Union era with the management experiences imported from the western European model.

Ukraine now has the opportunity to bring the idea of zapovednost, as a tool for nature and biodiversity conservation, to the rest of Europe.

Zapovednost is absent from the majority of European countries, or only implemented arduously to the daily management of their protected areas (e.g. Kalkalpen Wilderness, WILDIsland Vilm or Hohe Tauen Wilderness in Austria).

6.3.2. Wilderness in Ukraine

Zapovednyks represent the principal focus of Ukraine's nature conservation effort. The system was initiated in the former Soviet Union, shortly after the Revolution of 1917, and encompassed more than 150 Zapovednyks by 1988, of which 12 were in Ukraine. These were the Askaniia-Nova Nature Reserve, Black Sea Nature Reserve, Danube Shoals Nature Reserve, Carpathian Nature Reserve, Kaniv State Nature Reserve, Kara-Dag Nature Reserve, Luhansk Nature Reserve, Cape Martian Nature Reserve, Polisia Nature Reserve, Roztochia Nature Reserve, Ukrainian Steppe Nature Reserve, and Yalta Mountain and Forest Nature Reserve. Their total area (1985) was approximately 140 000 ha.

The main objectives of these zapovednyks were scientific research and the promotion of biosphere conservation activities. They also preserve representative examples of particular types of landscapes or biomes, such as steppe, estuary or forest ecosystems, and are sometimes called 'standards of nature' (etalons).

New Era

The system of Protected Areas categories of Ukraine was re-established and redefined by the national parliament of Ukraine (Verkhovna Rada) after the disintegration of the Soviet Union. On June 16th 1992 the President of Ukraine signed the law on the Nature-Preservation Fund of Ukraine. This law redefined the already established system of protected areas and environment protection management for Ukraine as a fully sovereign and independent country.

Today, protected areas in Ukraine are divided into eleven categories and objects of national or local importance.

There are five zapovednyk in Ukraine:

- Askaniia-Nova Biosphere Reserve
- Black Sea Biosphere Reserve
- Danube Biosphere Reserve
- Carpathian Biosphere Reserve
- Uzhanskyy National Nature Park

In addition, there are 17 national nature parks and 45 regional landscape parks.

Fig. 28: WILDRiver Sirokyy Luh.

6.3.3. Protected Areas Network in Ukraine

There is a network of Protected Areas in Ukraine which includes Biosphere Reserves, Nature Reserves, National Nature parks, Ramsar Sites, Regional landscape parks, Nature monuments and Habitat/Species Managed Areas. In general, the areas correspond to the internationally recognised IUCN protected area categories.

Potential Wilderness can mainly be found in the following categories of protected areas; Biosphere Reserves, Nature Reserves, National Nature parks and Ramsar Sites (usually as specific zones or parts).

Biosphere Reserves

Biosphere Reserves (biosphere zapovednyks) are environment-protected scientific-research institutions with an international status and are created with the intention to protect the most typical natural complexes of the country's biosphere in a natural state. The management of Biosphere Reserves includes ecological monitoring, studying natural processes and monitoring the impact of anthropogenic impacts.

Nature Reserves/zapovednyks

Nature Reserves/zapovednyks are environment protected, scientific-research institutions of state-wide status that have been created with the intention to protect the most typical natural complexes of the country in a natural state. The managements of Nature Reserves/zapovednyks study natural processes and conduct monitoring impact of anthropogenic impacts.

Biosphere and Nature Reserves/zapovednyks are protected from commercial use and are granted protection under Ukrainian law.

The main objective of the Biosphere Reserves and Nature Reserves/zapovednyks is the conservation of natural complexes and specific features as well as to conduct scientific research and monitoring, to disseminate environmental awareness, communication and interpretation.

National Nature Park

National Nature Parks are environment protecting, recreational, culture-educational and scientific-researching institutions with the goal of conservation, restoration and effective use of natural complexes and objects that have special environment-protected, health-oriented, historic, cultural, educational or aesthetic value.

The Objectives of National Nature Parks

- conservation of valuable natural complexes and historic and cultural features
- creating conditions for organised tourism, recreation and other outdoor activities that are compatible with protecting the natural complexes and features
- conducting scientific research of natural complexes and monitoring impact of recreational use
- development of management recommendations and effective use of natural resources
- implementation of environmental education and interpretation work.

6.4. Uholka-Shyrokyy Luh Wilderness

The 7 117 ha Uholka-Shyrokyy Luh Wilderness is part of the Carpathian Biosphere Reserve, located in western Ukraine. This area preserves the largest area of unique old-growth beech forest in Europe as well as the natural state of the Carpathian mountain landscapes. The Wilderness is located in the southern part of the Uholsko-Shyrokoluzhansky massif in the central part of Transcarpathia, north of the town of Tyachiv. Parts of this area have been protected since 1920.

The Uholka-Shyrokyy Luh Wilderness also includes the Uholka-Shyrokyy Luh WILD Forest (7,117 ha) and 3 WILDRivers – the upper part of the Mala Uholka River (7 km), the Velyka Uholka River (8 km) and the Shyrokyy Luh River (9 km).

The Uholka-Shyrokyy Luh Wilderness represents an outstanding example of undisturbed temperate beech forests and provides a sample of pure stands of European beech. The area contains a large genetic reservoir of beech on which many species depend on and can be associated with. The Uholka-Shyrokyy Luh Wilderness is part of the UNESCO World Heritage Site – Primeval Beech Forests of the Carpathians and Other Regions of Europe.

The Uholka-Shyrokyy Luh Wilderness is an area of great international importance and a local hotspot for biodiversity, which is dependent on spontaneous natural processes and ecosystem dynamics. It contains representatives of flora and fauna typical for old-growth Carpathian beech forests.

Fig. 29: Very little light penetrates the thick, closed canopy of beech forests.

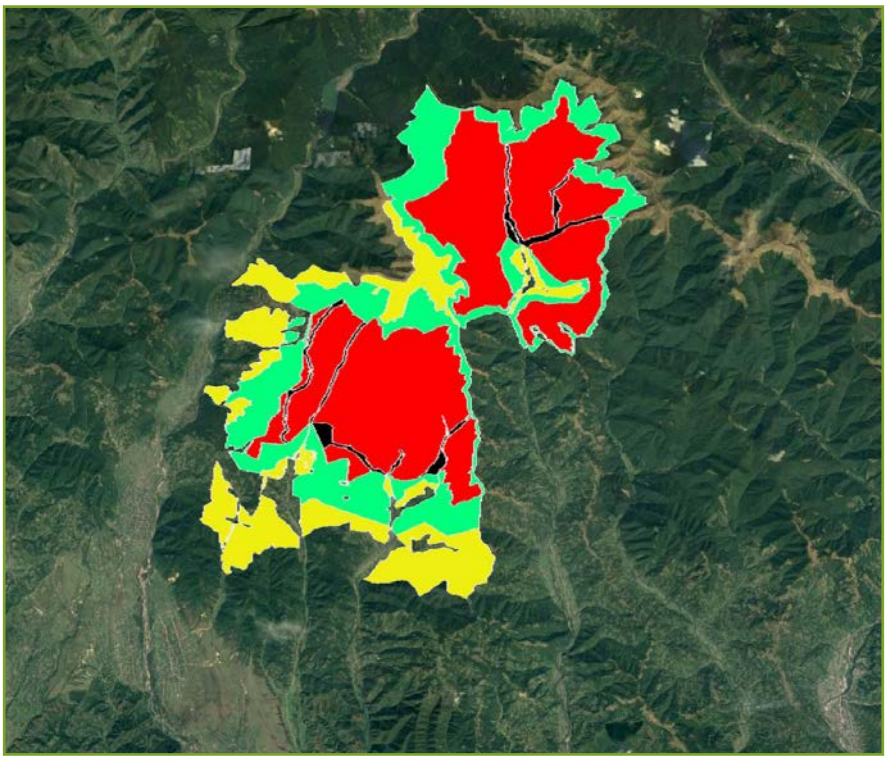


Fig. 30: Zoning of the Uholka-Shyrokyy Luh Massif: Core zones are red, buffer zones are light green. Zones of regulation are black and zones of traditional management are yellow

Fig. 31: Old trees and dead wood are essential habitats for many typical forest species.

6.4.1. History of the Uholka-Shyrokyy Luh Wilderness

The exploitation of the forest in the central part of Transcarpathia was impacted by settlements in the region and the extensive, sporadic use of the forest was an important activity of the local people. The region's borders changed frequently over the last centuries, therefore,

industrialisation and intensive forestry commenced relatively late in some remote valleys. For centuries large areas of the landscape remained untouched. However, when the German and Austrian woodcutters settled in this region in the 18th century, changes occurred and timber from conifers was rafted down the larger rivers. Remote beech forests like Uholka-Shyrokyy Luh, or mountain forests without any suitable water stretches for rafting, were spared for a long time, sometimes even until well into the 20th century. Other mountain forests were kept as royal hunting grounds and not used for timber. The first forest reserve in Transcarpathia was already established in 1908.

These circumstances created the situation where extensive remnants of old-growth forest in Transcarpathia persist today. Parts of these old-growth forests are now protected within the Carpathian Biosphere Reserve.

The unique old-growth forests of Uholsko-Shyrokoluzhanskyi massif are a natural heritage of global significance. Most European old-growth forests are no larger than 50–100 ha, and consequently, contiguous areas over 1000 ha such as the Uholka-Shyrokyy Luh discussed, are extremely rare.

The Uholka-Shyrokyy Luh Wilderness represents the region's most valuable treasure. The fresh and slightly damp, fertile soil presents optimal ecological conditions for beech trees, which can reach heights of 46 m and grow up to 140 cm in diameter. The majority of the forests are on hillsides with 15–30 degrees of slope gradient, and at altitudes between 400 – 1350 m. The climate of Uholka-Shyrokyy Luh Wilderness is mild, with average temperatures over 17°C in July and around -4 °C in January. The annual precipitation is approximately 950 mm. The massif mostly consists of flysch layers with limestone and sandstone as well as randomly scattered conglomerates.

A very special feature of Uholka-Shyrokyy Luh Wilderness is the presence of limestone cliffs and karst caves. Uholka-Shyrokyy Luh Wilderness contains approximately half of the about 60 karst caves found in the Ukrainian Carpathians, including the famous cave, "Druzhba" (Friendship), which is the largest cave in the Ukrainian Carpathians. The main landmark in the Uholka-Shyrokyy Luh Wilderness is the "Karst Bridge", a natural rocky arch, which has fascinated people for centuries. Additionally the region has numerous mineral springs.

6.4.2. Uholka-Shyrokyy Luh Wilderness Forest Types

Once the beech has established itself in an optimal location, such as Uholka-Shyrokyy Luh Wilderness, no other tree species can compete with this shade-tolerant tree. The region is dominated by pure beech forests, which represent 97% of the total area of the primeval forest in Uholka-Shyrokyy Luh Wilderness. The main forest associations are Fagetum dentariosum and F. asperulosum, two productive associations that hold some of the tallest beeches in Ukraine.

Mixed beech forest, such as sessile oak-beech and hornbeam-beech forests, dominate the warmer sites of the reserve. On damp sites at higher altitudes sycamore-beech forests prevail. Grey alder woods grow along the Uholka WILDRivers and the Shyrokyy Luh WILDRiver. Other tree species found in the reserve are ash, elm, broad-leaved lime, yew and juniper.

In some areas, such as Hrebin and Mala Kopytsya, a number of relic forests have been preserved. These relic forests are the only habitat for beech-lime forest with Sesleria (Fageto-Tiliaetum sesleriosum) in Ukraine. Yew-beech forests grow on the limestone slopes.

Characteristics of Old-growth Beech Forests

The most striking and impressive features of these old-growth forests are the broken-off tree stems covered with fungi, and the decaying trunks of fallen trees. The proportion of dead wood in Uholka-Shyrokyy Luh Wilderness amounts to 15% of the total volume of wood. In managed forests the proportion of dead wood is usually less then 2%.

In managed forests beech is usually harvested at an age of 100 to 150 years, which is long before their natural age limit. Consequently, old beech trees with diameters over 80-90 cm are rarely found in European beech forests. In Uholka-Shyrokyy Luh Wilderness beeches grow for up to 250 years and up to 150-160 cm in diameter before they die and start to gradually decompose or fall naturally. The gaps this creates are quickly covered with young beech seedlings. Only in places where more than one tree has been uprooted at the same time can light-demanding tree species, like maple or ash, able to grow.

Inhabitants of Undisturbed Forests

There are approximately 1000 brown bears (Ursus arctos), 500 wolves (Canis lupus) and 400 lynxes (Lynx lynx) living in the Ukrainian Carpathians. Other important carnivores in Transcarpathia are the wild cat (Felix silvestris), the otter (Lutra lutra) and the European mink (Mustela lutreola). Uholka-Shyrokyy Luh Wilderness provides suitable habitats for the majority of these species.

At the beginning of the 20th century the lynx was almost completely eradicated in Central and Western Europe. Today, the Carpathians Mountains are home to one of Europe's few viable lynx populations. Animals from this group are used in several reintroduction programs in the Alps and Balkans.

Another typical forest-dweller of these remote dark forests is the black stork (Ciconia nigra), a bird that can only be found in undisturbed old forests. Two or three couples nest in Uholka-Shyrokyy Luh Wilderness every year. Another endangered bird, the eagle-owl (Bubo bubo), is the largest owl of the Carpathian forests.

Dead Wood Specialists

Old trees and dead wood are essential habitats for many typical forest species. Without dead wood, many types of fungi, moss, lichen and insects would have no basis for existence. Uholka-Shyrokyy Luh Wilderness old-growth forests provide a paradise for dead-wood insects,

woodpeckers, bats and other tree-hole dwellers, like the stock dove (Columba oenas). All ten European woodpecker species can be found in Uholka-Shyrokyy Luh Wilderness and the surrounding forests. Furthermore, many rare insects are dependent on dead wood in old-growth forests hosts, such as the hermit beetle (Osmoderma eremita), the stag beetle (Lucanus cervus), the Alpine longicorn beetle Rosalia (Rosalia alpina) and the great Capricorn beetle (Cerambyx cerdo).

The high proportion of dead wood in Uholka-Shyrokyy Luh Wilderness also contains a much richer variety of fungi than a managed forest. Species like the coral tooth fungus (Hericium coralloides) or Dentipellis fragilis depend on old-growth forests and are still frequent in Uholka-Shyrokyy Luh Wilderness.

Night Flyers

Uholka-Shyrokyy Luh Wilderness is full of hollow trees and karst holes providing habitats for bats. Hollow trees are generally used as summer shelters as they are too cold for most bats in winter. However, a few bat species also hibernate in hollow trees. The caves in Uholka-Shyrokyy Luh Wilderness shelter approximately 2 000 bats belonging to 15 different species. Nine of them are rare and endangered throughout Europe, including the greater mouse-eared bat (Myotis myotis), Natterer's bat (Myotis nattereri) and the Brown long-eared bat (Plecotus auritus).

Ancient Life in Caves

The living conditions in the caves have remained practically unchanged until present day, enabling a number of ancient fauna species to survive. The isolation of these habitats, however, has prevented many of these species from spreading outside of their particular caves. The carabid beetle Duvalius transcarpaticus is one of these species. This completely blind and about 5 mm long insect is found exclusively in the caves of the Uholka-Shyroky Luh Wilderness. Its menu consists of springtails, (Collembola), of which a large number of species are adapted to caves as well. A previously unknown Collembola was discovered in the Druzhba Cave in 1996.

Lovers of the Water

Uholka-Shyrokyy Luh Wilderness is home to a unique endemic species, the Carpathian newt (Triturus montandoni). Another amphibian species is the salamander (Salamandra salamandra), whose bright yellow-black color renders it easily recognisable. The large forest keelback slug Bielzia (Bielzia coerulans) is nearly rainbow-like with its green, blue and violet strips. During the spawning season, the Danube salmon (Hucho hucho), one of Europe's most endangered fish species, moves upstream from the River Tisza to other rivers and streams of the area. Along the rivers you may spot a white-throated dipper (Cinclus cinclus) sitting on a rock or diving.

Rich Spring Flora

Little light can penetrate the thick closed canopy of beech forests, and therefore beech forests usually do not contain many shrubs. The herbal layer mostly consists of early flowering

plants, such as the yellow wood anemones (Anemone ranunculoides), the bittercress (Cardamine glanduligera), snowdrops (Galanthus nivalis), honesty (Lunaria rediviva) and spring fumewort (Corydalis solida), that often form carpets of flowers in spring before the beech trees are in leaf.

Approximately 500 species of vascular plants grow in Uholka-Shyrokyy Luh Wilderness. More than 30 species are rare in Ukraine, including endangered species such as deadly nightshade (Atropa bella-donna), moonwort (Botrychium lunaria), white helleborine (Cephalantera damasonium), spring crocus (Crocus vernus ssp. vernus), dogtooth violet (Erythronium dens-canis), plum-scented iris (Iris graminea), Russian belladonna (Scopolia carniolica) and Viola alba. The Transcarpathian bedstraw (Galium transcarpaticum) has been newly discovered in the area.

Access to the Uholka-Shyrokyy Luh Wilderness

Access to the Uholka-Shyrokyy Luh Wilderness is only permitted for guided tours and participants of workshops. The Uholka-Shyrokyy Luh Wilderness is located approximately 90 km from Uzhhorod and 60 km from Ivano Frankivsk. The Wilderness is accessible for cars and buses. Two nature trails, in Mala Uholka and in Velyka Uholka, provide a unique experience of Uholka-Shyrokyy Luh Wilderness.

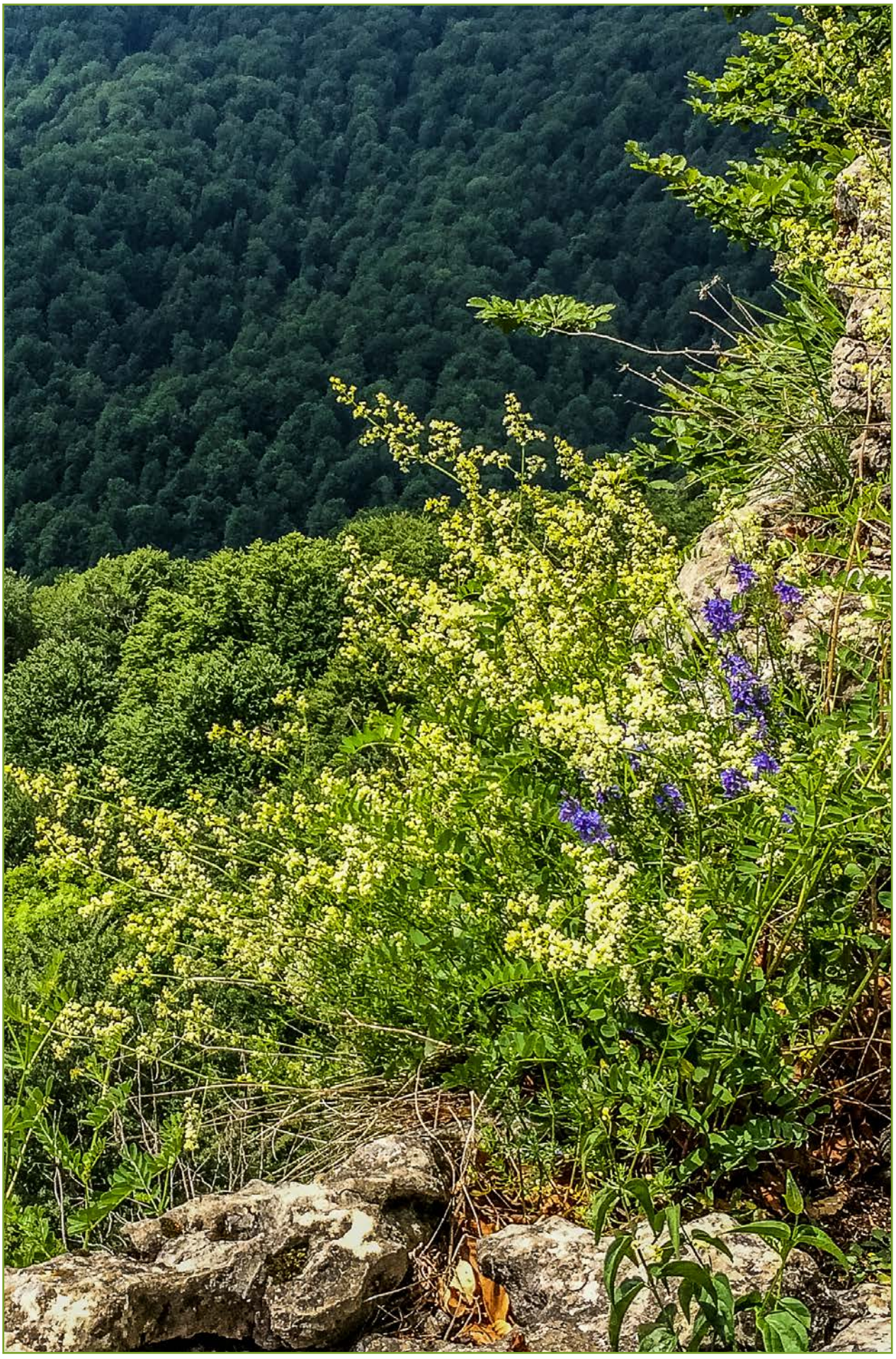
The Mala Uholka Hiking Trail

This loop trail leads through primeval beech forests passing by caves and limestone rocks on the way up to the Karst Bridge. The trail is approximately 5 km long, with 500 m difference in altitude. The whole trail takes about two hours. The best time for visiting is April to October.

The Velyka Uholka Hiking Trail

This trail is about 4.5 km in length, with a 400 m difference in altitude. The whole trail takes about two hours. The best time to visit is between April and October.

Fig. 32: Beech at the tree line in Velyka Uholka.



7. Implementation of the European Wilderness Quality Standard and Audit System in Uholka-Shyrokyy Luh Wilderness

7.1. Principles of the European Wilderness Quality Standard and Audit System

The nine European Wilderness Quality Standard and Audit System principles are divided into 54 criteria and over 300 indicators. Each area is assigned one of the four categories forming the European Wilderness Network: bronze, silver, gold or platinum. Areas of platinum or gold category are in general larger and contiguous. Areas of silver or bronze category are in general smaller and more fragmented.

Table 4: The nine European Wilderness Quality Standard and Audit System principles

Principles
1. Wilderness Size and Zoning
Wilderness has a defined boundary and should have three zones: the Wilderness zone (where there is no human intervention and natural dynamic processes govern), the Restoration zone (where restoration and/or expansion is undertaken) and the Transition zone (where further expansion of the Wilderness is planned).
2. Natural Processes and Biodiversity
Wilderness must have a Wilderness zone, where dynamic open ended natural processes can take place without human intervention, in order to contribute to the conservation of threatened species of that region and to become a leading example of an undisturbed habitat.
3. Wilderness Stewardship
The Wilderness stewardship contains several Wilderness concepts like a biodiversity stewardship plan, a support plan for natural dynamic processes, landscape management and the training of the Wilderness stewardship team. In addition, this principle covers the impact of tourism.
4. Wilderness Restoration

Wilderness restoration is an intentional activity that initiates or accelerates the recovery of a damaged ecosystem that has Wilderness potential. Wilderness restoration includes a wide range of activities such as restoration of disturbed areas and the reintroduction of native species. These activities should be implemented once and not continuously.
5. Wilderness and Extractive and Intrusive Uses
The European Wilderness definition stipulates that the Wilderness zone is an area without extractive or intrusive uses.
6. Wilderness Disturbance
This principle focuses on the removal of permanent and temporary infrastructure, creating well-planned tourism access with minimal impact and regulating and limiting road access to the Wilderness in order to reduce the human impact in the Wilderness zones.
7. Control Strategies for Fire, Diseases, Invasive Species and Other Natural Disturbances
Ecological disturbances are one of the most profound aspects of Wilderness. Natural disturbances, like windstorms, are important sculptors of landscape and habitats. However, they are often considered problematic and undesirable.
8. Wilderness Research and Monitoring
Wilderness offers opportunities to study the unique attributes of nature and natural processes. Quality Wilderness research and monitoring allows park managers to make appropriate decisions. Research and monitoring activities should never be invasive in their character and minimise impact to the Wilderness zone.
9. International Relevance and Importance of the Wilderness
A Wilderness should be internationally recognized by the IUCN, UNESCO, EU as well as other important international organisations.

Zoning of the European Wilderness Quality Standard and Audit System

The European Wilderness Quality Standard and Audit System and the Carpathian Biosphere Reserve use their own zoning systems. The European Wilderness Quality Standard and Audit System zoning system is based on the Definition of European Wilderness and Wild Areas. The Carpathian Biosphere Reserve zoning system is based on the Ukrainian legislation. The Uholka-Shyrokyy Luh massif has the same zoning system as the Carpathian Biosphere Reserve. The table below shows the compatibility of the two systems.

For the purpose of this report the Uholka Shyrokyy Luh Wilderness is zoned according to the European Wilderness Quality Standard and Audit System.

Table 5: Compatibility of the European Wilderness Quality Standard and Audit System and the Carpathian Biosphere Reserve zoning systems, EWQA = European Wilderness Quality Standard and Audit System

	EWQA	Carpathian Biosphere Reserve (CBR) and Uholka-Shyrokyy Luh Massif	Compatibility between EWQA and Uholka-Shyrokyy Luh Massif
Widerness[1)]	Wilderness zone[2)]	Core zone	Compatible. CBR Core zone is identical with EWQA Wilderness zone
	Restoration zone[3)]	–	There is currently no Restoration zone in Uholka-Shyrokyy Luh Wilderness
	Transition zone[4)]	Zone of regulated protection and buffer zone	Compatible. CBR zone of regulated reservation regime and buffer zone are identical with EWQA Transitional zone
		Zone of anthropogenic landscape	

Introduction

The Carpathian Biosphere Reserve was established as a zapovednik (nature reserve) in 1968 and became part of the UNESCO World Network of Biosphere Reserves in 1992. In 2007 substantial parts of the Carpathian Biosphere Reserve were listed on the UNESCO World Heritage Sites as a part of the Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe.

The Carpathian Biosphere Reserve was created to protect large areas of old-growth beech

[1] Wilderness areas can be categorised into three 'zones,' with a core area surrounded by a restoration/buffer area of minimal activities, which in turn is surrounded by a Transition zone (see Appendix II). It is considered that this threefold structure offers the best protection of key Wilderness principles whilst allowing potential for future expansion and flexible interaction with other land uses. (Definition of European Wilderness, 2013)

[2] The Wilderness/core zone would have the 'highest' quality of Wilderness, with minimal impact of human activity or infrastructure and a dominance of natural processes. Where feasible, outward expansion would occur over time through restoration/rewilding into the Restoration/buffer zone – particularly if the core is not initially large enough to allow complete ecological processes. (Definition of European Wilderness, 2013)

[3] The Restoration/buffer zone, with a relatively low impact of human presence, surrounds and protects the core zone. Emphasis here should be on restoration/rewilding of natural habitats and processes, with phasing out of built structures and high impact activities within 10 years. Where feasible, there should be plans for it to be incorporated into the core zone and expand outwards over time into the Transition zone. (Definition of European Wilderness, 2013)

[4] The Transition zone is an area where a range of human activities is permitted, but with management controls preventing development of major infrastructure, wind farms or large scale clear felling, that might significantly alter the landscape or natural environment. Sustainable harvesting of timber, animals (hunting & fishing) and plants (berries, fruits, mushrooms), together with organic agriculture is possible. (Definition of European Wilderness, 2013)

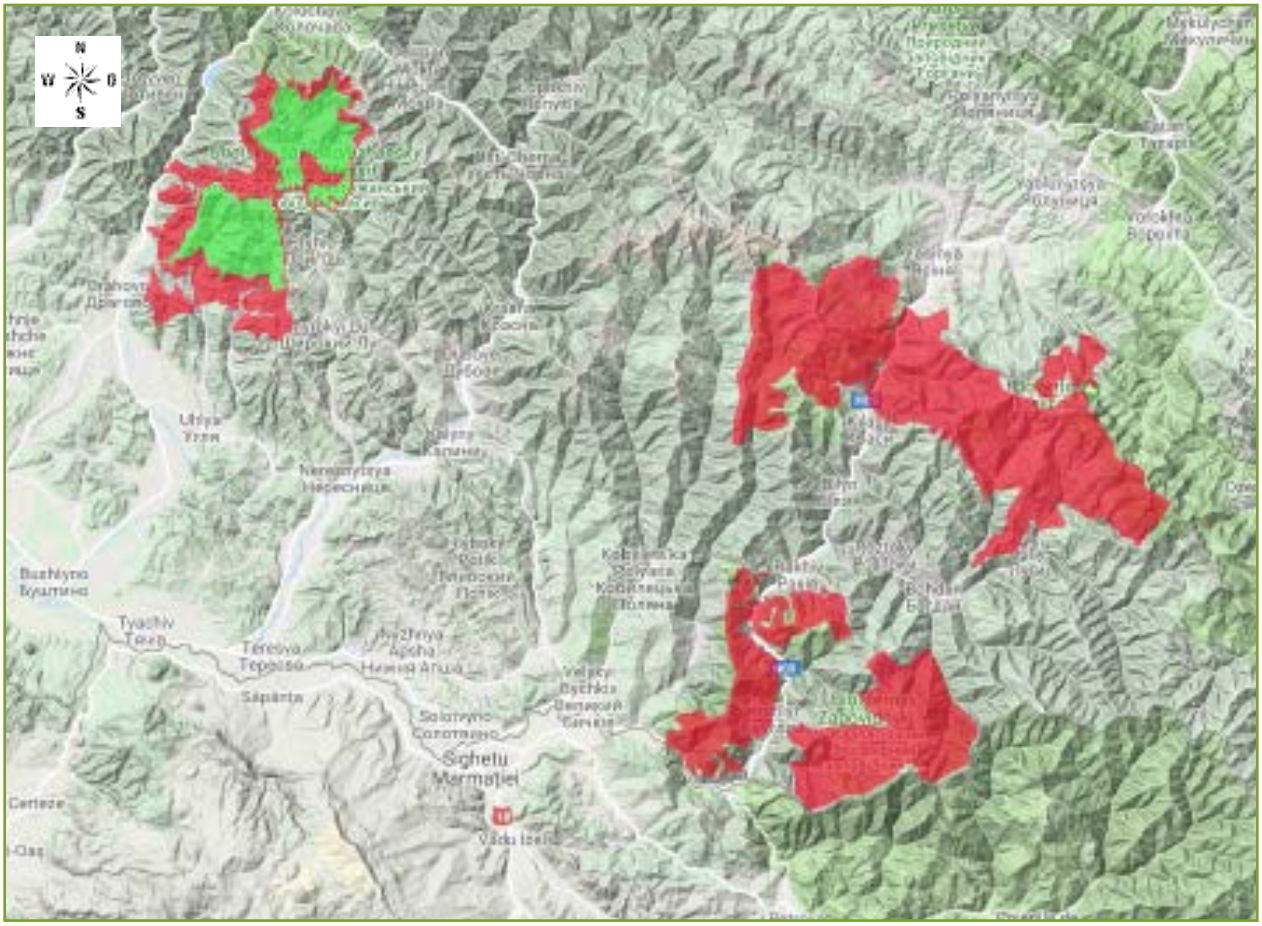


Fig. 33: Uholka-Shyrokyy Luh Wilderness. Green: Wilderness zone, red: management zone and other massifs of Carpathian Biosphere Reserve

forest mixed with oak, spruce and maple. The reserve also protects sub-alpine and alpine communities and the last extensive areas of narcissus.

According to the Ukrainian legislation, the overall objective of the Carpathian Biosphere Reserve is protection, research and tourism. This differentiates from the overall objective of National Parks where tourism is the main priority followed by protection and research.

The Carpathian Biosphere Reserve has an ambition to achieve the Platinum level of the Wilderness standard for Uholka-Shyrokyy Luh Wilderness.

International Audit

A team of the European Wilderness Society auditors visited Uholka-Shyrokyy Luh Wilderness several times in 2016 and 2017 to carry out the 14 day site assessment. This field assessment included several overnight stays within the Wilderness.

The European Wilderness Society team verified 7 117 ha of Uholka-Shyrokyy Luh Wilderness which was awarded a Platinum Wilderness Certificate and became a member of the European Wilderness Network.

7.1. Principle 1: Wilderness zoning and size

Wilderness has a defined boundary and should have three zones: The Wilderness zone (where there is no human intervention and natural dynamic processes govern), the Restoration zone (where restoration and/or expansion is undertaken) and the Transition zone (where further expansion of the Wilderness is planned). If this is not the case, additional measures to ensure the protection and functioning of the Wilderness must be implemented. The size of the Wilderness zone depends on the predominant habitat type.

Reason for the Principle

The principle focuses on four main aspects of Wilderness quality; size, zoning, boundaries and maps.

7.1.1 Criterion 1.1. The Wilderness has three zones: The Wilderness zone, the Restoration zone and the Transition zone

Reason for the Criterion

Zoning is a tool to assist the planning and stewardship of Wilderness. In general, zoning divides a protected area into logical units for management. It applies consistent management objectives based on natural, cultural and recreational values, and existing and projected patterns of access in relation to specific conservation goals. The zones reflect the intended land use, the degree of human use, the level of management and the permitted development. Wilderness certified under the European Wilderness Quality Standard and Audit System should have three zones with a Wilderness zone surrounded by a Restoration zone, which in turn is surrounded by a Transition zone. This threefold structure is considered to offer the best protection of key Wilderness principles whilst allowing potential for future expansion and flexible interaction with other land uses.

Current Situation

Uholka-Shyrokyy Luh Wilderness is divided in two zones: A Wilderness zone and a Transition zone. Since the Uholka-Shyrokyy Luh Wilderness is large (platinum standard), a large Restoration zone is not necessary. Uholka-Shyrokyy Luh Wilderness is currently surrounded by the Transition zone.

As the Uholka-Shyrokyy Luh Wilderness is large, it fulfils the management criteria for Restoration and Transition zone. As the Wilderness zone is adequately connected with these areas it is not necessary to delineate the Restoration zone separately.

The size of the Uholka-Shyrokyy Luh massif is 15 033 ha, divided into the following: a Wilderness zone with 7 117 ha (core zone) and a Transition zone with 4 862 ha (zone of regulated protection and buffer zone). Additionally, the Uholka-Shyrokyy Luh massif includes 3 054 ha of an anthropogenic zone.

The size and zoning of the Uholka-Shyrokyy Luh Wilderness zone is identical with the size of the WILDForest. Uholka-Shyrokyy Luh Wilderness also includes three WILDRivers – the upper watersheds of the Mala Uholka River (7 km), the Velyka Uholka River (8 km) and the Shyrokyy Luh River (9 km).

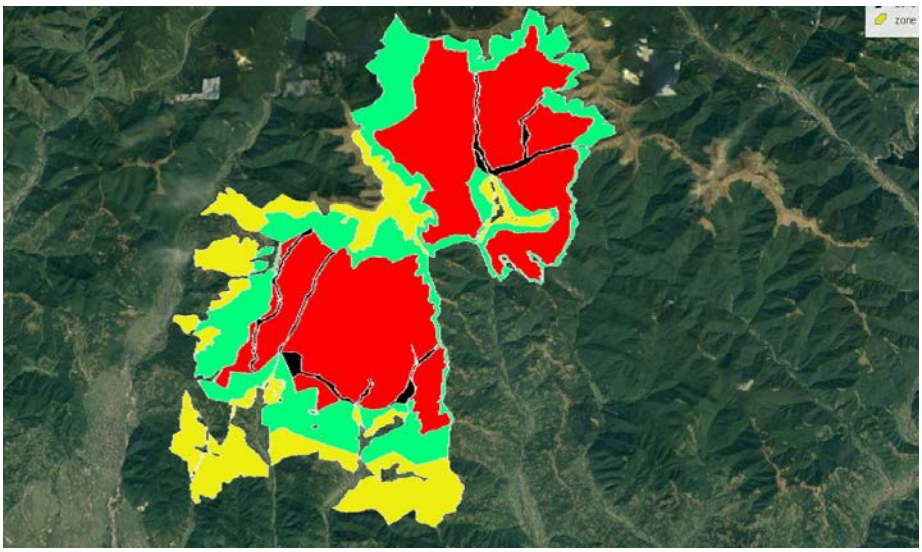


Fig. 34: Zoning of the Uholka-Shyrokyy Massif in the Carpathian Biosphere Reserve, Ukraine © Carpathian Biosphere Reserve

The Uholka-Shyrokyy Massif core zone was audited as the Uholka-Shyrokyy Wilderness zone. The Uholka-Shyrokyy Massif zone of regulated protection and buffer zone was audited as the Uholka-Shyrokyy Transition zone. All these zones are part of the Uholka-Shyrokyy Luh Wilderness and consequently of the European Wilderness Network. Both zones have none or minimal human activity or intervention. Natural processes dominate these zones.

The land of the Uholka-Shyrokyy Luh Wilderness is owned by the Ukrainian State, whereby the Carpathian Biosphere Reserve has the direct management responsibility for it. Some areas in and around the Uholka-Shyrokyy Luh Wilderness are managed by the State Forest Service. This government agency is acting according to instructions of the Carpathian Biosphere Reserve Administration on these areas. The whole Wilderness is controlled by the Carpathian Biosphere Reserve field employees - Wilderness forest rangers.

The anthropogenic zone is located in the lowlands of the reserve and includes several human settlements, in particular at the south side of the massif. Human activities are allowed but are subjects to a certain level of control, in order to prevent unwanted influences in the border regions.

Findings

The current zoning is currently being reassessed and will be finalised in the following 1-2 years. There are areas around the Uholka-Shyrokyy Luh Wilderness with a great potential for Wilderness enlargement and restoration.

Strengths

The Uholka-Shyrokyy Luh Wilderness zone is one large contiguous piece of Wilderness. The current zoning is an important management tool to achieve the long-term objective of Wilderness conservation.

The Wilderness zone is not missing any important ecological processes, such as succession, deadwood production or a habitat for native species, etc. The Wilderness zone is completely free of any management or restoration measures.

The Carpathian Biosphere Reserve and Uholka-Shyrokyy Luh Wilderness have good internal digital maps (a small team of experts produce digital maps with a GIS system).

Weaknesses

The zoning of Uholka-Shyrokyy Luh Wilderness is currently missing a Restoration zone despite the fact that there is potential for Wilderness restoration.

The Uholka-Shyrokyy Luh Wilderness is missing a good topographic map for the public.

Recommendations

The park management must develop a concept to create a Restoration zone (including proposal and map).	
Priority: Medium	Time Frame: 2022
The Park management must improve the communication of their Wilderness zonation.	
Priority: High	Time Frame: 2022

Fig. 35: Simple panel includes basic information.

Fig. 36: A team of the European Wilderness Society auditors visited Uholka-Shyrokyy Luh Wilderness several times in 2016 and 2017 to carry out the demanding 12 day-site assessment.

7.1.2. Criterion 1.2. The Wilderness zone has clearly defined boundaries

Reason for the Criterion

A defined boundary on the map and in the field is critically important for a well-protected Wilderness. A well-defined and visible boundary avoids or minimises possible disturbances or damages to the Wilderness.

Current Situation

Wilderness is a well-established part of the management of the Carpathian Biosphere Reserve. The boundaries of Uholka-Shyrokyy Luh Wilderness are identical with the core zone, buffer zone and zone of regulated protection boundaries of the Carpathian Biosphere Reserve, Uholka-Shyrokyy Luh massif. These boundaries are identical with the former borders of forestry units.

The boundaries of the Wilderness and the Wilderness zone are marked on the map but are not always clearly visible in the field. The boundaries are clearly visible at the south side of Uholka-Shyrokyy Luh Wilderness, where most of the public and internal trails start.

Findings

The European Wilderness Society team verified approximately 45% of the Wilderness boundaries in the field. All of these verified boundaries were clearly visible and according to the map (particularly at the western and northern boundaries of Uholka).

The boundaries mostly follow identifiable natural features in the landscape, such as ridges, creeks, old gravel roads or the tree line and are known by the Uholka-Shyrokyy Luh Wilderness field staff and local forest managers.

Strengths

Around 60% of the boundaries signs can be identified in the field because they follow obvious geographical features, such as valleys, creeks, the tree line or ridges.

The Uholka-Shyrokyy Luh Wilderness has well defined boundaries on the map.

The Uholka-Shyrokyy Luh Wilderness has a standardized design for their boundary signs (size, shape and colour). The signs are located at every entry point (trails, roads) to make sure that people are aware that they enter the Carpathian Biosphere Reserve and Uholka-Shyrokyy Luh Wilderness. All important points have GPS coordinates and are usually well fixed in field.

The Carpathian Biosphere Reserve has a well-developed system of digital maps (GIS). These maps provide a very effective tool to identify boundaries and to manage and improve the stewardship quality of Uholka-Shyrokyy Luh Wilderness.

There is potential and an intention to enlarge Uholka-Shyrokyy Luh Wilderness. This potential for enlargement in the surrounding land (forest service land) is mapped and researched by the management of the Carpathian Biosphere Reserve in several ongoing projects. Once an enlargement will be achieved, it will be important to mark the new boundaries of the Wilderness zone in the field and on maps.

Weaknesses

The Wilderness boundaries signs are not always fully marked in the field. The visitors are aware that they enter the Carpathian Biosphere Reserve but not that they enter the Uholka-Shyrokyy Luh Wilderness.

The boundaries of Uholka-Shyrokyy Luh Wilderness are not always well marked, except at its entry points, and are consequently not always visible in the field. In particular, the boundaries between the Wilderness zone and the Transition zone are not very visible in the field (area of the tree line). These boundaries are usually only known by the local management authority, due to their regular patrolling and forestry control activities outside of Uholka-Shyrokyy Luh Wilderness and the Carpathian Biosphere Reserve. The poor visibility of the boundaries of Uholka-Shyrokyy Luh Wilderness causes increasing pressure by local stakeholders (grazing of domestic animals and commercial berry picking) on the Wilderness.

There is a lot of potential to improve the corridors to other existing and potential Wilderness areas in the surrounding, such as other massifs of the Carpathian Biosphere Reserve as well as to Synevyr Wilderness in Synevyr National Nature Park and to Gorgany Wilderness in Gorgany State Reserve. The visibility of these boundaries should be improved.

Recommendations

The park management must develop detailed and continuously update zoning maps of Uholka-Shyrokyy Luh Wilderness.	
Priority: High	Time Frame: 2021
The park management must improve the boundaries of the Wilderness and the Wilderness zone in the field.	
Priority: High	Time Frame: 2022
The park management must incorporate the boundaries of the Wilderness and the Wilderness zone in the existing information media (information panels, leaflets, brochures, maps, etc.) to inform visitors and tourists. The boundaries must be clear in the field, in particular in areas with high visitor concentration.	
Priority: High	Time Frame: 2024

Fig. 37: Newly placed standardised sign.

7.1.3. Criterion 1.3. The minimum size of the Wilderness zone depends on the predominant habitat type. Wetlands typically have a minimum Wilderness zone of 500-1 000 ha while other habitats have a Wilderness zone between 2 000-10 000 ha

Reason for the Criterion

The size of a Wilderness zone is one of the most important aspects for long term conservation. These areas are considered to have a high biodiversity and ecological functioning value resulting in a high capacity to adapt to changes in abiotic and biotic conditions, without shifting to a different qualitatively state. In other words, they are ecologically resilient. The minimum size of the Wilderness zones differs between habitats and depends on the particular situation, which can vary from place to place.

Current situation

Uholka-Shyrokyy Luh Wilderness is a large contiguous piece of land with a total size of 7 117 ha.

This size, together with the large areas of natural forests around in the north, west and east, supports the ecological connectivity with the surrounding areas. The Wilderness zone is large enough to support spontaneous natural processes.

There are several remote areas with difficult terrain outside the west and east side of Uholka-Shyrokyy Wilderness which have the potential to meet the Wilderness quality standard.

Findings

The size of the Wilderness zone has been expanded several times since the Carpathian Biosphere Reserve was created. The current size and zoning system is the result of intensive internal and external discussions which led to the final approved version. This process is still continuing due to the ongoing developments of the new management plan of the Carpathian Biosphere Reserve.

Strengths

The Wilderness zone is a unique example of undisturbed beech forest. It is the largest contiguous area of beech forest in Central Europe.

The park management is already working on the identification of areas for potential Wilderness enlargement.

Weaknesses

There is a complex system of landownership around Uholka-Shyrokyy Luh Wilderness and a strong commercial interest of land owners including the State Forestry.

Recommendations

The park management must identify potential areas for an enlargement of the Wilderness and the Wilderness zone.	
Priority: High	Time Frame: 2021
The park management must develop a long-term plan to enlarge the current Uholka-Shyrokyy Luh Wilderness zone. This proposal includes a detailed map of the existing Wilderness with a Restoration zone and a Transition zone.	
Priority: High	Time Frame: 2021
The park management must seek funding and resources to enlarge the Uholka-Shyrokyy Luh Wilderness.	
Priority: High	Time Frame: 2021

Fig. 38: The zoning is currently being reassessed and will be finalised in the coming years.

7.2. Principle 2: Natural processes and biodiversity

Wilderness must have a Wilderness zone, where natural dynamic open ended processes can take place without human intervention, in order to contribute to the conservation of regionally threatened species and to enable the Wilderness to become a leading example of undisturbed habitats.

Reason for the Principle

This principle focuses on one of the key ecological aspects of the Wilderness Quality Standard, which is naturalness. Naturalness means, the naturalness of vegetation and associated species assemblages as well as the presence of natural processes.

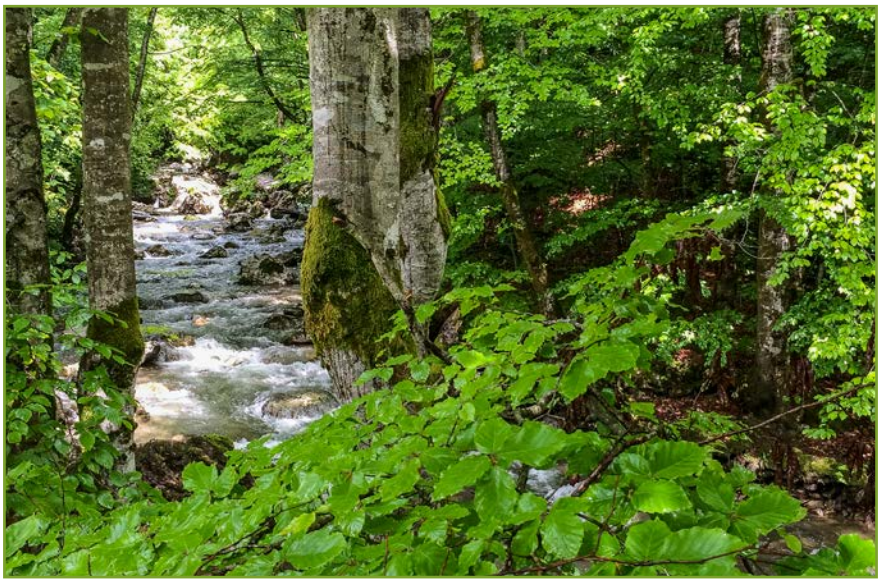


Fig. 39: Crystal clear water in the WILDRiver Velyka Uholka.

7.2.1. Criterion 2.1. The Wilderness zone has undisturbed natural dynamic processes

Reason for the Criterion

Natural vegetation and its associated species are the result of an area's unique evolutionary history within its local abiotic environment. Its conservation is not only important for species protection but also for the adaptation to climate change and other environmental disturbances. Therefore, spontaneous natural processes and examples of undisturbed habitats play a crucial role for conservation.

The main objective in the Wilderness zone is to maintain natural dynamics as well as a high level of biodiversity with minimal or no management measures, whenever possible.

Current Situation

Non-intervention management is well-established in the Wilderness zone and the concept of such a strictly-protected Wilderness zone has already been developed and implemented for several decades.

The Carpathian Biosphere Reserve is managed by a team of committed staff, led by a director and vice-director with a strong Wilderness vision. Their long-term systematic work is based on a wide range of research-based analysis with a focus to respect Wilderness dynamics in this part of the Carpathian Mountains.

The Uholka-Shyrokyy Luh Wilderness provides a unique opportunity for people all over Europe to study and experience an area that has been governed by spontaneous natural dynamic processes for several decades and has no active management measures. The reserve offers an opportunity for other European countries to experience and learn how Wilderness protection can work.

Findings

The protection of the spontaneous natural processes is monitored and supported by park officials and field rangers. The Uholka-Shyrokyy Luh Wilderness has a strong and long-term approach to protect the natural processes in the reserve and the resulting unique biodiversity of the Wilderness zone. The main objective of the Wilderness zone is to maintain natural dynamics and spontaneous natural processes as well as examples of undisturbed ecosystems. The value of the Wilderness zone and the spontaneous natural processes were the main arguments to meet the requirements of the UNESCO World Heritage Site.

Historical records of this area being used by local people are only from the 17th-18th century, when some tree species, such as oak, were diminished in the area. Since these interventions, the area has been left for two centuries and been shaped by spontaneous processes.

The site assessment confirmed that the Wilderness zone has a full spectrum of spontaneous natural dynamic processes. In particular, the area of the Shyrokyy Luh watershed is an excellent example of natural dynamics. The large contiguous area of beech forest (ca 5 000 ha) was full of small and medium sized disturbances, when strong winds or snow broke or uprooted parts of the forest. These openings reach from 2 – 400 ha.

Wind is the most important natural dynamic process in Uholka-Shyrokyy Luh Wilderness. Openings caused by wind trigger spontaneous fragmentation and regeneration.

Strengths

The Wilderness zone contains unique examples of large undisturbed ecosystems, such as WILDForest (beech, maple, lime), rocky outcrops and three WILDRivers. The area is governed by natural dynamic processes.

The site assessment revealed the remarkable work that has been done in the last decades concerning Wilderness management and strictness of natural dynamic processes protection. The experiences gained here can be transferred to other Wilderness areas in Ukraine and throughout Europe.

The objective in the Wilderness zone is to maintain and protect the Wilderness quality, to study dynamic processes and to increase the knowledge on Wilderness, natural dynamic processes and biodiversity. The management has a long-term vision for the Wilderness zone with following priorities: non-intervention management, possible enlargement and systematic monitoring.

This experience of management in the Wilderness zone provides valuable evidence to protect biodiversity through the implementation of non-intervention management. There is solid and systematic ongoing research that focuses on collecting data and evidence for the benefits of Wilderness management.

There is also systematic research happening on various parameters to measure the scale of naturalness, such as site conditions, regeneration, tree species composition, utilisation, amount of deadwood, tree age and other indicators. The currently developed management plan will fulfil the standards of a Wilderness Stewardship plan even better.

Weaknesses

The knowledge gained on non-intervention management is mostly available in Ukrainian and only partially in German and English. The research done with German researchers and universities in the last two decades is available in German and English but only partially fills this gap.

The lack of information in German and English, particularly with a focus on the public, limits the distribution of information beyond Ukrainian and Russian speaking countries. A result of this lack of language diversity is that only a limited number of local stakeholders and political decision makers are fully aware of the importance and uniqueness of this place and the role natural dynamic processes and biodiversity protection play in the Wilderness zone.

Recommendations

The park management must list and map examples of natural dynamic processes in the Wilderness zone. The list and maps should be updated regularly.	
Priority: High	Time Frame: 2022
The park management must develop a comprehensive plan for the Wilderness zone to maintain natural dynamics processes.	
Priority: High	Time Frame: 2022
The park management must continue to monitor examples of natural dynamic processes and collect arguments for their importance to protect biodiversity.	
Priority: High	Time Frame: 2022
The park management must continue to communicate the importance of Wilderness stewardship, the protection of natural dynamic processes and biodiversity in the Wilderness zone to the local stakeholders and visitors as well as the partners of the European Wilderness Network.	
Priority: High	Time Frame: 2022

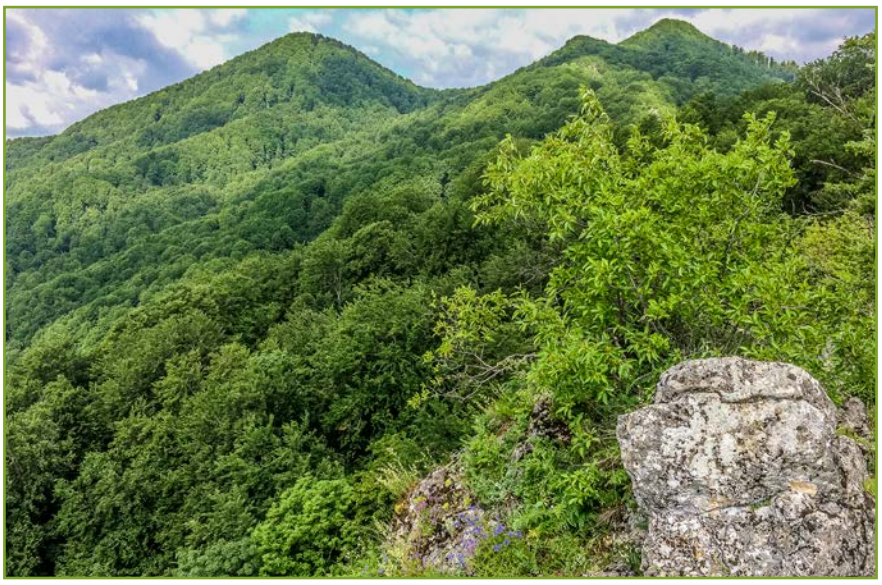


Fig. 40: The Uholka-Shyrokyy Luh Wilderness protects the natural processes and unique biodiversity..

7.2.2. Criterion 2.2. The Wilderness zone contributes to the support of Wilderness-indicator species

Reason for the Criterion

The quantity and dynamisms of Wilderness-indicator species are just two of several important indicators to measure the naturalness of Wilderness.

Specific species, such as xylobiont beetles (relict species living with/by/through dead wood) or woodpeckers (e.g. white-backed woodpecker), who are highly specialised for dead wood, are considered indicator species for a healthy ecosystem.

Large carnivores, such as lynx, wolf or bear, and their ability to mate and raise cubs are also good indicators of a healthy Wilderness.

Current situation

Approximately 75% of the management staff agree that the Wilderness zone contributes to the support of Wilderness-indicator species and guarantees the conservation of natural processes and biodiversity dynamics. This means that Wilderness provides a safe habitat for a number of Wilderness indicator species, such as bear, wolf, lynx or birds of prey. Wilderness also provides an excellent habitat to increase the population of these species, in particular during sensitive periods in their life cycle, such as the breeding season.

Findings

The Wilderness zone contributes to the support of Wilderness-indicator species. The management documents provide information on IUCN red-listed species. For many of them, Uholka-Shyrokyy Luh Wilderness provides a safe refuge during critical periods of their life. Management measures are directed towards mitigating the main threats to these Wilderness-indicator and red-listed species, with particular focus on human activities (e.g. zones without management, no hunting, and fishing, enlargement effort, etc.).

The Carpathian Biosphere Reserve and the surrounding areas host a full spectrum of Wilderness-indicator species. Typical for the Carpathian Mountains are large carnivores such as wolf, lynx or bear. Wolves occasionally use the area as a corridor, otters are still present in creeks and brown bears also inhabit this area. The area offers no suitable habitats for typical alpine animals, such as marmot and chamois.

Strengths

The official management policy states that the Wilderness zone is an important tool to protect Wilderness-indicators and other rare species through the protection of their habitats and the natural processes taking place. The majority of staff agrees on this statement.

The management plan provides information on Wilderness-indicator and red-listed or endemic species. There is ongoing research on endemic species. Previous research has confirmed that there is a correlation between more Wilderness and more deadwood, which hosts many relict species.

Non-intervention management contributes to the conservation of Wilderness-indicator species (e.g. wolf, bears, lynx, otter, and eagle). This management approach is used to mitigate the main threats to these species, in particular human activities. The creation of zones without hunting and fishing is an effective tool in this work.

The park rangers are, besides patrolling and protecting the Wilderness, involved in the monitoring and research of Wilderness-indicator species. The park rangers are also involved in international co-operations (e.g. guiding international experts and researchers) and other field activities.

Weaknesses

There is a growing pressure of forestry operations, berry picking, hunting and grazing from the surrounding areas. This is partially due to the traditional use of the land but also due to the current difficult economic situation. All these activities threaten Wilderness-indicator species.

The knowledge about the importance of a long-term conservation approach to protect Wilderness-indicator species is not widespread among local stakeholders.

Recommendation

The park management must provide information on Wilderness-indicator species as well as endemic, red-listed, vulnerable and rare species, which occur in the Wilderness and particularly in the Wilderness zone.	
Priority: High	Time Frame: 2022
The park management must collect information on native species in the Wilderness and Wilderness zone that have decreased or become extinct.	
Priority: High	Time Frame: 2022
The park management must monitor large herbivores in the Wilderness and especially in the Wilderness zone.	
Priority: High	Time Frame: 2021
The park management must monitor large carnivores, especially bear, lynx, wolf and golden jackal in the Wilderness and especially in the Wilderness zone.	
Priority: High	Time Frame: 2022
The park management must continue with public education programs focusing on Wilderness-indicator species.	
Priority: High	Time Frame: 2022
The park management must develop a communication plan explaining the importance of Wilderness-indicator species in the Wilderness and particularly in the Wilderness zone to stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.	
Priority: Medium	Time Frame: 2022

Fig. 41: The Uholka-Shyrokyy Luh Wilderness offers an excellent opportunity for other European countries to experience and learn how Wilderness protection can work.

Fig. 42: The site assessment revealed the remarkable work that has been done in the last decades to protect the Uholka-Shyrokyy Luh Wilderness.

7.2.3. Criterion 2.3. The Wilderness zone contains examples of undisturbed natural dynamic processes and ecosystems

Reason for the Criterion

It is difficult to find undisturbed habitats in Europe, therefore, the European definition of Wilderness does not only describe pristine or primeval landscapes but also recovering areas without intrusive or extractive human activities, settlements, infrastructure or visual disturbances.

Current Situation

The Carpathian Biosphere Reserve and Uholka-Shyrokyy Luh Wilderness are well-known examples of undisturbed, natural dynamic processes and ecosystems, and of systematic implementation of non-intervention management.

Findings

The Wilderness zone contains examples of undisturbed ecosystems, in particular old-growth beech forest with deadwood at different stages of decay, both standing or on the ground. Areas with no signs of logging create a highly diverse habitat. The deadwood is home to a wide variety of biodiversity, particularly of invertebrates, larva, insects and fungi.

Strengths

The Uholka-Shyrokyy Luh Wilderness zone contains the finest examples of undisturbed beech forest ecosystems in the entire country and likely Europe. Large areas of old beech forest contain standing and lying deadwood and show no evidence of logging.

This area also includes a network of stream s and creeks without any signs of human disturbances. The streams in the Valleys of Mala, and Velyka Uholka and Shyrokyy Luh are an excellent example of WILDRivers.

Another indicator of undisturbed dynamic ecosystems is the presence of all big native Carpathian carnivores and birds of prey. All activities in the Wilderness zone are carefully controlled and monitored by park staff, particularly by rangers.

Weaknesses

There is ongoing grazing in alpine pastures above the Uholka-Shyrokyy Luh Wilderness, and there are corridors through the Wilderness used to bring domestic animals up and down to alpine pastures.

Recommendation

The park management must continue monitoring undisturbed natural dynamic ecosystems.
Priority: High Time Frame: 2022

The park management must continue to develop an information communication strategy informing the local, national and international audience on the importance of undisturbed ecosystems.
Priority: High Time Frame: 2022

Fig. 43: The objective in the Wilderness zone is to maintain and protect the Wilderness quality and to study dynamic processes.

7.2.4. Criterion 2.4. The Wilderness has a plan to restore natural dynamic processes in the Restoration zone

Reason for the Criterion

Wilderness is rarely undisturbed. Therefore, places that have been impacted by humans should be restored to Wilderness over time.
Restoration is the process of assisting in the recovery of a landscape that has been degraded, damaged or destroyed. Restoration can be active or passive.
Active restoration is an intentional activity that initiates or accelerates landscape recovery with respect to the functional processes, species composition and community structure as well as to the resistance to disturbances. Passive restoration means the performance of minimal short-term activities and the decision to leave the area to restore on its own.

Current Situation

The passive restoration of the natural dynamic processes in the Uholka-Shyrokyy Luh Wilderness is part of the current management plan.

The Wilderness zone has minimal signs of past human impacts. The impact of grazing from the alpine meadows above Uholka-Shyrokyy Luh Wilderness reaches a maximum of 100-150m into the forest. Spontaneous restoration in this area is in progress as grazing pressure has been significantly reduced in the past decade. Due to this, the forest provides an excellent study area to collect information about spontaneous restoration at the tree line.

Findings

The Wilderness managers have a clear vision to restore natural processes in the Wilderness zone and the Restoration zone. The spontaneous regeneration of the old beech forest is visible in many areas, usually where disturbances (e.g. wind, snow) triggered this process.

Similar dynamics can be observed at the tree line which is built by beech trees. Several research papers discuss the fact that the narrow tree line (above the present-day beech forest) was originally constructed either by beech Krummholz or by beech mixed with conifers trees, and that this former tree line belt was removed by humans in the previous centuries. Spontaneous regeneration is visible where grazing has been stopped for various reasons.

Strengths

The restoration of natural dynamic processes in the Uholka-Shyrokyy Luh Wilderness is part of the current management plan.

Recommendations

The park management must continue restoring natural dynamic processes in the Restoration zone.	
Priority: High	Time Frame: 2022
The park management must develop an information communication strategy aimed at the local, national and international audience focusing on the necessity of continuing restoring natural dynamic processes in the Restoration zone.	
Priority: High	Time Frame: 2022

Fig. 44: The Uholka-Shyrokyy Luh Wilderness includes a network of streams and creeks without any signs of human disturbances.

7.3. Principle 3: Wilderness Stewardship

Wilderness stewardship contains several Wilderness concepts like a biodiversity management plan, a support plan for natural dynamic processes, landscape management and the training of the Wilderness stewardship team. In addition, this principle covers the impact of tourism.

Reason for the Principle

The designation of an area as a Wilderness does not always guarantee that it will be managed to ensure its preservation. In order to guarantee long-term sound Wilderness conservation, it is necessary to have a good understanding of the principles of Wilderness stewardship. Proper Wilderness stewardship must recognise and respect that Wilderness is an area governed by natural processes, composed of native habitats and species and is large enough for ecological functioning. The area needs to be unmodified or only slightly modified without intrusive or extractive human activities, settlements, infrastructure or visual disturbances.

7.3.1. Criterion 3.1. The Wilderness is protected by law in accordance with national legislative frameworks for an indefinite period of time

Reason for the Criterion

In order to guarantee the protection of Wilderness for an indefinite period of time it needs to be protected by law. National legislative frameworks include laws for protected areas, by-laws and other regulations related to nature conservation and protection. These laws usually provide secured long-term legal protection and are the most common tools to mitigate any possible illegal activities as well as to prevent commercial development.

Current Situation

The Carpathian Biosphere Reserve is part of the Ukrainian protected areas network. The protection of this area was declared in 1968 and is protected by law in accordance to national legislative frameworks for an indefinite period of time.

Findings

Uholka-Shyrokyy Luh Wilderness is a unique example of Wilderness management. The aim of this area is to protect Wilderness in accordance to national legislative frameworks by focusing on non-intervention management. The nature conservation law strictly states that not even the ministry can issue permission to implement specific management activities such as allowing sanitary logging in the Carpathian Biosphere Reserve.

Strengths

Uholka-Shyrokyy Luh Wilderness is legally protected and this legislation has set a clear objective and management approach on which activities can take place in the Wilderness. Because of the clear legislative framework Uholka-Shyrokyy Luh Wilderness is considered an important model for Wilderness conservation in Ukraine and Central Europe.

Weaknesses

The current dual management responsibility by the Carpathian Biosphere Reserve and the State Forestry is a limiting factor for further enlargement of Uholka-Shyrokyy Luh Wilderness in the foreseen future.

Recommendations

The park management must develop and implement a long-term plan to guarantee the legal protection of the Wilderness zone (e.g. specific Wilderness focused legislation, develop a concept of long-term agreement/lease with the Ukrainian State Forest Service).

Priority: High Time Frame: 2022

The park management must develop a proposal to transfer or to purchase the using rights of Wilderness land (Wilderness zone or potential restoration zone) that is currently managed and owned by the State Forestry for an indefinite period of time, to the competence of the Administration of the Carpathian Biosphere Reserve.

Priority: High Time Frame: 2022

The park management must continue to implement a long-term Wilderness communication strategy with a focus to guarantee the legal protection of the Uholka-Shyrokyy Luh Wilderness.

Priority: High Time Frame: 2022

Fig. 45: The Uholka-Shyrokyy Luh Wilderness is a well-known example of undisturbed, natural dynamic processes.

Fig. 46: The field work is an important part of Wilderness stewardship in the Uholka-Shyrokyy Luh Wilderness.

Fig. 47: The Uholka-Shyrokyy Luh Wilderness is legally protected and this legislation has set a clear objective and management approach.

7.3.2. Criterion 3.2. The Wilderness has a detailed Wilderness Stewardship Plan of at least 10 years

Reason for the Criterion

A manager has a natural urge to 'manage', whether there is a need for it or not.
The urge to manage Wilderness can be inconsistent with the concept of Wilderness. By definition, Wilderness is an area governed by natural processes. It is composed of native habitats and species, and large enough for the effective ecological functioning of natural processes.

The term management strongly suggests that people are in control, that the land needs to be managed. Non-intervention management can therefore be a new approach for protected area managers.

Wilderness stewardship is a more accurate terminology of this form of land use as it is a more holistic approach to Wilderness management, where managers first determine whether there is the need for any management action before implementing an action plan.

Wilderness stewardship aims to protect, maintain and, where necessary, restore Wilderness to provide opportunities for solitude in nature. It includes the designation, planning, management and monitoring of Wilderness. A long-term Wilderness Stewardship Plan is an important tool to achieve these goals.

Current Situation

The Carpathian Biosphere Reserve has developed several documents providing a framework for daily management. These documents include a long-term Wilderness conservation strategy and a management plan. The management plan is updated every 10 years and the reserve is currently developing a new plan.

Several documents developed in the past are available including a management plan and zoning maps with existing and visionary plans. The management plan documents all activities and extractive uses in the Wilderness zone.

The long-term Wilderness protection is currently not supported by adequate financial resources, which come from various sources, such as the federal and provincial government of Ukraine as well as from projects funded by various international donors, including the European Commission. The team is partially skilled (with significant support of international partners) at accessing resources from EU sources. The Carpathian Biosphere Reserve is currently implementing several projects which focus on Wilderness research and monitoring.

Findings

The current management plan provides a framework for daily management and includes short and long-term objectives that highlight the need to maintain ecosystem processes and biodiversity over the long term.

These documents outline the basic objectives and management principles for the Carpathian Biosphere Reserve, including Uholka-Shyrokyy Luh Wilderness.

The whole property of the Carpathian Biosphere Reserve is owned by the Ukrainian Government. The administration of the Carpathian Biosphere Reserve has the management responsibility for approximately 70% of the reserve. The remaining land is managed by the State Forestry. This situation is also the case for Uholka-Shyrokyy Luh Wilderness.

The management plan provides a framework to develop a financial plan. Presently, the financial resources of the reserve are from the government budget and also from resources generated by entrance fees. The protected area is facing a challenging financial situation due to the ongoing war and economic crisis (a number of already planned activities, particularly educational and tourism activities, have been postponed).

Strengths

The Carpathian Biosphere Reserve has several documents dealing with a long-term conservation strategy, Wilderness conservation and connectivity with other protected areas in the surroundings. These documents are mostly internal and only available in Ukrainian language.

The Carpathian Biosphere Reserve and Uholka-Shyrokyy Luh Wilderness have long and short-term objectives as well as a comprehensive communication and marketing strategy. The management objectives highlight the priorities of Wilderness conservation, ecological processes and the maintenance of biological diversity over the long-term. The main Wilderness conservation objective is to create a large and contiguous Wilderness zone.

The land ownership by the Ukrainian government currently guarantees that the area of the Carpathian Biosphere Reserve and Uholka-Shyrokyy Luh Wilderness will not be a subject of inappropriate management measures.

Weaknesses

Several important documents for long-term Wilderness management, long-term conservation strategy and connectivity with other Wilderness in surroundings are only available in Ukrainian.

The land ownership by the State Forestry creates a constant challenge to guarantee the implementation of appropriate management measures in the Carpathian Biosphere Reserve and Uholka-Shyrokyy Luh Wilderness.

Recommendations

The park management must finalise a comprehensive Wilderness Stewardship Plan based on non-intervention management principles for the Wilderness and especially for the Wilderness zone.	
Priority: High	Time Frame: 2024
The Wilderness stewardship plan must be a separate document or chapter of the overall management plan and must include an English summary.	
Priority: Medium	Time Frame: 2024
The Wilderness stewardship plan should follow the template published on the EWS Website.	
Priority: Medium	Time Frame: 2024
The park management must develop an information communication strategy and must share the summary of the Wilderness Stewardship Plan with the stakeholders and the partners of the European Wilderness Network.	
Priority: Medium	Time Frame: 2024

Fig. 48: Sheep grazing is still a traditional activity above the Uholka-Shyrokyy Luh Wilderness.

7.3.3. Criterion 3.3. The Wilderness has a sufficiently large and trained full time management team

Reason for the Criterion

An important precondition for successful park operations is an appropriately sized, committed and trained management team.

Due to the wide range of skills the park management staff must possess, it is imperative that proper training is made available.

A manager who is trained to handle Wilderness in a professional manner will smooth over problems with less collateral damage. Having a professional and trained management team will save time and valuable resources.

Current situation

Uholka-Shyrokyy Luh Wilderness has a professional management team. Most of them believe in the importance of non-intervention in the Wilderness zone. The objective of the team is to guarantee the long-term protection of the Carpathian Biosphere Reserve and Uholka-Shyrokyy Luh Wilderness.

The park management has a high level of Wilderness management knowledge and approximately 70% of the park employees believe in the importance of non-intervention in the Wilderness zone.

Wilderness management knowledge is a mandatory requirement for Uholka-Shyrokyy Luh Wilderness employees. 80% of the park staff have a forestry education and 20% are university educated. All three top level managers (i.e. the director and two deputies) are well-educated and support Wilderness conservation.

Regular trainings are organised for the management team. There are random meeting of Ukrainian National Park employees (including directors and staff) with subjects such as various management issues, including non-intervention management.

The Carpathian Biosphere Reserve organises a number of seminars and field trainings focused on Wilderness. The reserve also uses external lectors and trainers.

Findings

Approximately 60% of Uholka-Shyrokyy Luh Wilderness employees have been met during the site assessment, such as the director, the deputy directors, chief ranger, field rangers and administrative staff. They are committed and proud to work in the park, particularly in the Uholka-Shyrokyy Luh Wilderness.

The park rangers have the responsibility to implement and communicate the nature conservation legislation. Their work focuses on patrol and data collection. The size of a ranger district is 500-600 ha.

Discussions with the management team confirmed that approximately 40% of Uholka-Shyrokyy Luh Wilderness employees (e.g. rangers) are directly involved in the Wilderness management.

The site assessment revealed that the park rangers have good knowledge and skills to work in the field and fulfil tasks linked to Wilderness conservation (e.g. patrolling, monitoring, etc.).

However, the wilderness rangers are inadequately paid and equipped, and frequently have to use private transportation and equipment.

Strengths

Uholka-Shyrokyy Luh Wilderness has a professional management team which is sufficiently large and trained. There are approximately 15 field rangers and a number of seasonal employees in summer, including students doing research work.

Personal belief and commitment to Wilderness conservation is a critical element for effective Wilderness management. There are several individuals strongly committed to the protection of Uholka-Shyrokyy Luh Wilderness.

There are several management trainings for Uholka-Shyrokyy Luh Wilderness staff. There is a strong commitment and urge of the management team to learn more and gain new skills.

The importance of Wilderness and non-intervention management has grown in the last several years. It will likely be a higher importance when this area is added to the European Wilderness Network. Presently, the following training subjects should be a priority: Wilderness in Europe, Wilderness and ecological processes and biodiversity, Wilderness and large predators, Wilderness rangers, Wilderness and visitors and locals.

Weaknesses

There is a need to train staff in areas such as Wilderness stewardship, non-invasive monitoring methods and mapping systems, as well as to improve English language skills and Wilderness focused education and interpretation.

To improve the current working conditions for the managers and rangers, large investments in working tools and monitoring equipment are necessary. Most of the information about ongoing training programmes is only available in Ukrainian.

Recommendations

The park management must develop a Wilderness-focused training plan based on Wilderness stewardship best practice examples, for the management team and particularly for the rangers in Uholka-Shyrokyy Luh Wilderness.	
Priority: High	Time Frame: 2023
The park management should consider opportunities to invite foreign experts on the subject of Wilderness stewardship and interpretation.	
Priority: Medium	Time Frame: 2020

Fig. 49: The Uholka-Shyrokyy Luh Wilderness has a professional management team.

Fig. 50: Ranger shelter provides emergency accommodation.

7.4. Principle 4: Wilderness Restoration

Wilderness restoration is an intentional activity that initiates or accelerates the recovery of a damaged ecosystem that has Wilderness potential. Wilderness restoration includes a wide range of activities, such as restoration of disturbed areas and the reintroduction of native species. These activities should be implemented once and not continuously.

Reason for the Principle

A Wilderness restoration plan is necessary if there is an objective to expand the Wilderness zone.

Fig. 51: The objective to enlarge the Wilderness zone is an important criterion and requires planning.

7.4.1. Criterion 4.1. The Wilderness has a Wilderness restoration plan to enlarge and improve the Wilderness zone

Reason for the Criterion

The objective to enlarge the Wilderness zone is an important criterion and requires planning. Enlarging the Wilderness zone is a strategic decision and therefore this process should include key stakeholders.

Enlarging the Wilderness zone is an important and necessary decision for Wilderness managers to meet the European Wilderness Quality Standard or to upgrade the Wilderness quality. The enlargement of the Wilderness zone can reduce fragmentation and minimise negative impacts. Adequately large Wilderness zones provide safe areas for species to thrive and ecosystem functioning.

Current situation

The Carpathian Biosphere Reserve has a long-term vision to develop a unique large Wilderness and to become a model for other Wilderness areas in Ukraine and Europe. Uholka-Shyrokyy Luh Wilderness has a potential for enlargement via Wilderness restoration.

To implement their long-term vision the Carpathian Biosphere Reserve has a Wilderness restoration plan to enlarge and improve the Wilderness and Wilderness zone. A particular part of this plan focuses on Uholka-Shyrokyy Luh Wilderness.

The long-term strategy to enlarge the Uholka-Shyrokyy Luh Wilderness zone demands a non-intervention approach, in addition to expanding experience on Wilderness management to the wider region. The guiding document for this process is a current management plan (2018-2019).

Findings

There is potential to enlarge the current size of Uholka-Shyrokyy Luh Wilderness for approximately 1 000 ha, particularly at the north-east side (forest around the Menchul Peak). Parts of this area are owned by the State Forestry but management measures are controlled by the Carpathian Biosphere Reserve.

Strengths

There is a significant potential for enlargement of Uholka-Shyrokyy Luh Wilderness, as a result of an existing nearby forested area with Wilderness quality. In addition, there is growing interest in non-intervention management and Wilderness conservation among young people, particularly in large urban areas.

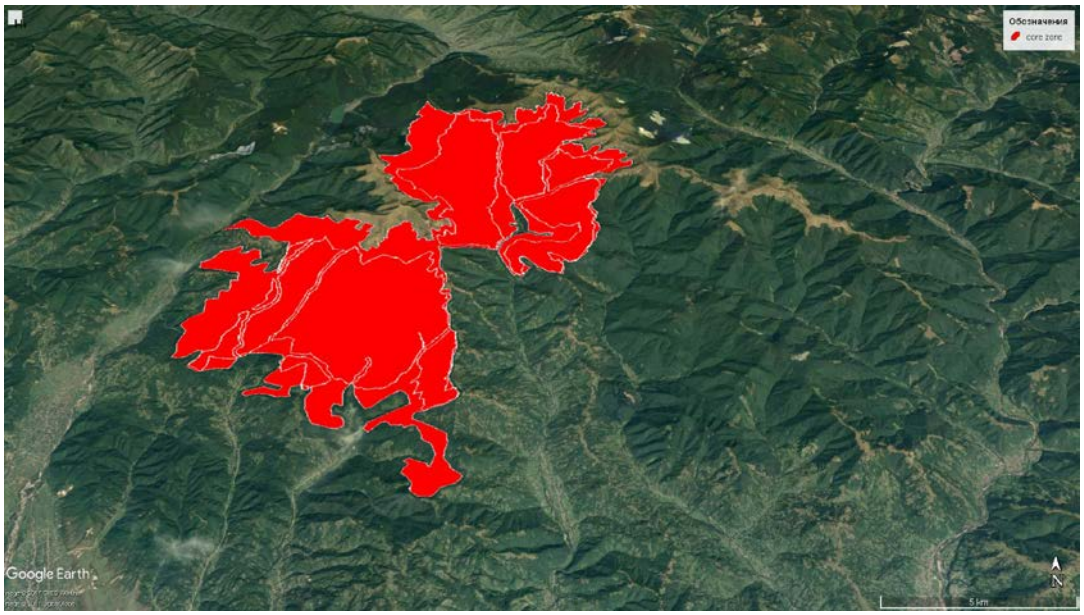


Fig. 52: Proposed enlargement of Uholka-Shyrokyy Luh Wilderness in the Carpathian Biosphere Reserve, Ukraine, white line indicates current Uholka-Shyrokyy Luh Wilderness. © Carpathian Biosphere Reserve

The process of enlargement includes the improvement of ecological links, particularly with:

- other large massifs of the Carpathian Biosphere Reserve (particularly Svydovets, Chornohora, Kuziy-Trybushany, Maromorosh)
- surrounding protected areas (Zacharovanyy kray, Synevyr).

These would support the development of connectivity corridors, and reduce fragmentation and disturbances.

Weaknesses

In order to achieve an enlargement of the Wilderness zone using the Wilderness restoration plan, several key issues need to be solved; an agreement with the State forestry needs to be achieved and support of local governments needs to be gained. However, this is a challenging process due to many socio-political and economic constraints. The document dealing with the potential enlargement of the Wilderness zone (Wilderness restoration plan) is only available in Ukrainian.

Improving the ecological links, in particular with the other large massifs of the Carpathian Biosphere Reserve and protected areas in the surroundings, is a long-term process.

Recommendations

The park management must continue with the implementation of a long-term vision to build up connecting corridors with Wilderness in the vicinity.

Priority: High Time Frame: 2022

The park management must develop an information communication strategy explaining the need of Wilderness restoration and enlargement plans to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.

Priority: High Time Frame: 2022

Fig. 53: The Uholka-Shyrokyy Luh Wilderness is an excellent example for the results achieved through several decades of passive Wilderness restoration.

7.4.2. Criterion 4.2. The Wilderness zone should be enlarged with the help of Wilderness restoration measures in the Restoration zone

Reason for the Criterion

Due to land use and human activities in the past, biological and/or physical processes have been altered in a particular area. In this case, active management measures might be needed to restore ecological functioning and return the land to its natural condition as much as possible. Revegetation and restoration of native species are just two examples of active management measures.

A Wilderness restoration plan is a tool for implementing an intentional activity that initiates or accelerates the recovery of a damaged ecosystem with Wilderness potential.

Current Situation

The Carpathian Biosphere Reserve is gradually implementing a long-term Wilderness restoration plan in Uholka-Shyrokyy Luh Wilderness.

Findings

There are ongoing spontaneous processes leading to long-term Wilderness restoration in Uholka-Shyrokyy Luh Wilderness.

Currently, there is a large-scale and long-term Wilderness restoration project going on, including the potential Wilderness in the East and West site of Uholka-Shyrokyy Luh Wilderness.

Uholka-Shyrokyy Luh Wilderness is an excellent example for the results achieved through several decades of passive Wilderness restoration. Spontaneous restoration of beech forest happening along the tree line (south and south west slopes of Menchul Peak) provides an additional opportunity to enlarge the Wilderness zone.

Strengths

The Carpathian Biosphere Reserve and particularly the Uholka-Shyrokyy Luh Wilderness has professional and passionate staff, who strongly believe in the implementation of passive Wilderness restoration with minimal intervention.

Extractive uses in Uholka-Shyrokyy Luh Wilderness were completely removed several decades ago. Activities like forestry (including sanitary logging), grazing, hunting (including the culling of large herbivores) are not happening in the site. Due to the remoteness and the absence of roads the area is not accessible by motorised vehicles.

The intensity of alpine grazing above the tree line (outside of Uholka and Shyrokyy Luh Wilderness) has decreased in the last decade.

A lot of resourses and capacity have been used in recent years to communicate and increase the support of locals, stakeholders and the general public for an enlargement of the Wilderness and for passive Wilderness restoration. The Uholka-Shyrokyy Luh Wilderness is a model for other Wilderness areas in Ukraine and Central Europe.

Weaknesses

The traditional forestry and use of the alpine zone around the Uholka and Shyrokyy Luh Wilderness limits the potential to enlarge Wilderness and implement Wilderness restoration measures in the Restoration and Transition zone.

Recommendations

The park management must develop a Wilderness restoration plan to restore natural dynamic processes in the Restoration zone with the help of Wilderness restoration measures.

Priority: High Time Frame: 2022

Park management must develop an information communication strategy explaining the need of Wilderness restoration (strategy, plans) to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.

Priority: High Time Frame: 2022

Fig. 54: Extractive uses in the forests of Uholka-Shyrokyy Luh Wilderness have already been completely removed several decades ago.

7.5. Principle 5: Wilderness extractive and intrusive uses

The European Wilderness definition stipulates that Wilderness is an area without intrusive or extractive uses.

Reason for the Principle

The Wilderness zone does not have any extractive uses or intrusive activities, such as forestry, hunting/culling, fishing, agricultural activities including livestock grazing, or mining, dead wood collection or any other activities that modify the landscape or extract resources. However, during restoration, some management activities and/or extractive uses might be permitted at the bronze and silver Wilderness quality levels.

7.5.1. Criterion 5.1. The Wilderness zone has no extractive or commercial uses.

Reason for the Criterion

Extractive or commercial uses have a negative impact on the Wilderness zone.

Current Situation

The Wilderness zone has no extractive or commercial uses.

Findings

The assessment team verified a large part of the Uholka-Shyrokyy Luh Wilderness zone. This area provides an excellent example of a large contiguous area of Carpathian beech forest Wilderness. The area has naturally re-wilded in the last several decades.

Strengths

The Wilderness zone has a long-term vision with a goal to continue with non-intervention re-wilding. Extractive uses were removed from the Wilderness zone several decades ago.

Weaknesses

In the past, the Wilderness zone was sporadically used for the extraction of timber. There are no signs of these extractive uses visible anymore in the Wilderness zone.

Recommendations

The park management must strictly enforce the rule of no extractive or commercial uses in the Uholka-Shyrokyy Luh Wilderness zone.

Priority: High Time Frame: 2020

The park management must monitor possible breaches of this principle.

Priority: High Time Frame: 2020

The park management must develop a concept and action plan to reduce the demand of locals for resources of Uholka-Shyrokyy Luh Wilderness (increase the size of the transition zone to satisfy the needs of locals for fire wood, support development of small grant fund to fund the development of alternative energy supplies e.g. solar panels and biomass).

Priority: High Time Frame: 2021

Recommendations

The park management must continue education and interpretation activities which focus on the impact of extractive uses (i.e., grazing, forestry and hunting) or commercial uses (i.e., guiding visitors, collecting berries) to enable spontaneous natural dynamic processes in the Wilderness zone.

Priority: Medium Time Frame: 2020

Fig. 55: The Wilderness zone has a long-term vision with a goal to continue with non-intervention re-wilding.

Fig. 56: Extractive or commercial uses above the forest have a negative impact on Wilderness.

7.5.2. Criterion 5.2. The Wilderness zone has no forestry operation

Reason for the Criterion

Forestry operations, even selective cutting and near-nature forest management techniques, are not compatible with the principles of Wilderness.

Current situation

There are no forestry operations in the Wilderness zone.

Findings

There are no forestry operations in the Wilderness zone.

Strengths

The Wilderness zone has no forestry activities due to the clear objectives set at the formation of the protected area several decades ago. In the future, forestry activities are unlikely due to the objectives of the Carpathian Biosphere Reserve and its legal protection.

Weaknesses

The current legislation is not very clear regarding limited sanitary management in the Wilderness zone e.g. for insect outbreaks and sanitary cuttings. In order to prevent any damages in the Wilderness zone, a clear statement by the park management will be necessary.

Recommendations

The park management must continue to prohibit all forestry operations in the Wilderness zone, including sanitary logging.	
Priority: High	Time Frame: 2020
The park management must develop and implement an information communication strategy explaining the reasons, consequences and results of stopping all forestry operations to enable natural dynamic processes to function freely in the Wilderness zone. This strategy has to be targeted at stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.	
Priority: High	Time Frame: 2021

Fig. 57: There is no forestry operation in the Wilderness zone.

7.5.3. Criterion 5.3. The Wilderness zone has no hunting and/or game management

Reason for the Criterion

Hunting and/or game management are not compatible with Wilderness.

Current Situation

There is no hunting in the Carpathian Biosphere Reserve or the Uholka-Shyrokyy Luh Wilderness.

Findings

There is no hunting and game management in the Uholka-Shyrokyy Luh Wilderness.

The park management provides hay and salt in the Wilderness with the intention to support the population of herbivores (roe deer, ca 200 animals, and red deer, ca 70 animals).

These management measures should be stopped due to new legislation valid from 2017. However, the feeding stations are a subject of internal discussions and illustrate the variety of opinions among the Uholka-Shyrokyy Luh Wilderness managers.

Strengths

Hunting and game management activities are not allowed in the Wilderness zone and in the whole Carpathian Biosphere Reserve. The Uholka-Shyrokyy Luh Wilderness zone is a large area without extractive use which supports the population of all typical Carpathian animals (e.g. lynx, wolf, bear, badger, fox, otter, roe deer and red deer).

Weaknesses

The attitude of the local communities is not always positive concerning the replacement of hunting by natural predators. Poaching of herbivores and likely also wolf or boar is possible/does appear, even though the park management has no further knowledge on this subject (or is not willing to admit it).

The park management provides hay and salt in the Wilderness with the intention to support the herbivore population. These management measures should be stopped due to new legislation valid from 2017. However, the feeding stations are a subject of internal discussions and illustrate the variety of opinions among the Uholka-Shyrokyy Luh Wilderness managers.

Recommendations

The park management must monitor the impact of poaching in the Uholka-Shyrokyy Luh Wilderness.
Priority: High Time Frame: 2020

The park management must develop an information communication strategy explaining the importance of having a hunting free zone within the Wilderness zone to stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.
Priority: High Time Frame: 2020

The park management must continue to emphasise the communication of the importance of having carnivores like bear, wolves, lynx and golden jackal in the Wilderness zone.
Priority: High Time Frame: 2020

7.5.4. Criterion 5.4. The Wilderness zone has no extractive fishing or management of fish populations

Reason for the Criterion

Extractive fishing and/or management of fish populations are not compatible with Wilderness.

Current Situation

There is no fishing or management of fish populations in the Wilderness zone.

Findings

The Wilderness zone has good fish habitats and excellent, undisturbed stream habitats. Several native fish species can be found in the three rivers in Uholka-Shyrokyy Luh Wilderness.

Strengths

Fishing is not permitted in the Wilderness zone.

Recommendations

The park management must continue to monitor and control extractive illegal fishing activities.
Priority: High Time Frame: 2020

The park management must develop an interpretation programme with a focus on native fish species.
Priority: Medium Time Frame: 2021

Fig. 58: The Wilderness zone has excellent fish habitats with several native fish species.

7.5.5. Criterion 5.5. The Wilderness has a fish and game management plan for the Restoration and Transition zones

Reason for the Criterion

Principle 1 proposes to create a Restoration and a Transition zone. The management of these two zones requires specific activities with the objective to enlarge the Wilderness zone.

The Restoration zone, with its relatively low human impact, does not only surround and protect the Wilderness zone, but also assists in the restoration and rewilding of habitats and ecological functioning. The objective of the Restoration zone includes that these activities are phased out within ten years.

The Transition zone is an area where a range of human activities are permitted. However, management controls prevent the development of major infrastructure, such as wind farms or large scale clear cutting, which would significantly alter the landscape or the environment. Sustainable harvesting of timber, animals (i.e. hunting and fishing) and plants (e.g. berries, fruits and mushrooms), together with organic agriculture, is possible in the Transition zone.

Current Situation

A management plan is currently in development. It will include the management of fish and game populations in Uholka-Shyrokyy Luh Wilderness.

Strengths

The park management has a lot of experience with the management of fish and game populations in Uholka-Shyrokyy Luh Wilderness.

Weaknesses

Poaching is a serious threat to the reserve's animal populations, including large carnivores. The fish and game management documents are only available in Ukrainian.

Recommendations

The park management must continue with the monitoring and controlling of extractive fishing activities and game management in the surroundings as well as their impact on the Wilderness zone.

Priority: High Time Frame: 2020

7.5.6. Criterion 5.6. The Wilderness zone has no active mining

Reason for the Criterion

Mining activities are often located in proposed Wilderness. Therefore, the reason for the criterion is to prevent future mining activities in newly designated Wilderness.

Current situation

The Wilderness zone (and whole protected area) has no active mining.

Findings

The Wilderness zone has no active mining.

7.5.7. Criterion 5.7. The Wilderness zone has abandoned old mining sites

Reason for the Criterion

Abandoned mining sites are frequently located in proposed Wilderness areas. The reason for the criterion is to bring attention to the abandoned mining sites in newly designated Wilderness.

Current situation

The Wilderness zone (as well as the whole protected area) has no abandoned former mining sites.

Findings

The Wilderness zone has no abandoned former mining sites.

Fig. 59: The Wilderness zone (as well as the whole protected area) has no abandoned former mining sites.

7.5.8. Criterion 5.8. Park management has implemented a restoration plan for previous mining sites in the Restoration zone

Reason for the Criterion

Abandoned mining sites are frequently located in the surroundings of proposed Wilderness areas. The park management should have a restoration plan for previous mining sites in the Restoration zone.

Current situation

The Restoration zone (as well as the whole protected area) has no abandoned former mining sites.

Findings

The Restoration zone has no abandoned former mining sites.

7.5.9. Criterion 5.9. The Wilderness zone has no domestic livestock grazing

Reason for the Criterion

Livestock grazing is not compatible with Wilderness.

Current situation

The Wilderness zone has no domestic livestock grazing.

Findings

The Wilderness zone has no domestic livestock grazing.

There is traditional grazing of cattle and sheep on the poloniny outside of Uholka-Shyrokyy Luh Wilderness. The intensity of these grazing activities is declining and parts of the poloniny above the Wilderness are free of grazing. The grazing at the poloniny affects the Wilderness zone when the herds pass through Uholka-Shyrokyy Luh Wilderness twice a year. These passings follow a corridor through either rivers in the valleys or old, badly eroded gravel roads at the ridge between Velyka Uholka and Shyrokyy Luh.

Low intensity grazing also occurs in the lower regions between the Wilderness and above the villages Mala and Velyka Uholka, and in particular above the village Shyrokyy Luh. In Shyrokyy Luh valley, grazing enclaved (meadows) penetrate several km into Shyrokyy Luh Valley along the river. These enclaves are not included in Wilderness.

Strengths

The Wilderness zone has no domestic livestock grazing.

Weaknesses

The corridors for livestock significantly fragment Uholka-Shyrokyy Luh Wilderness.

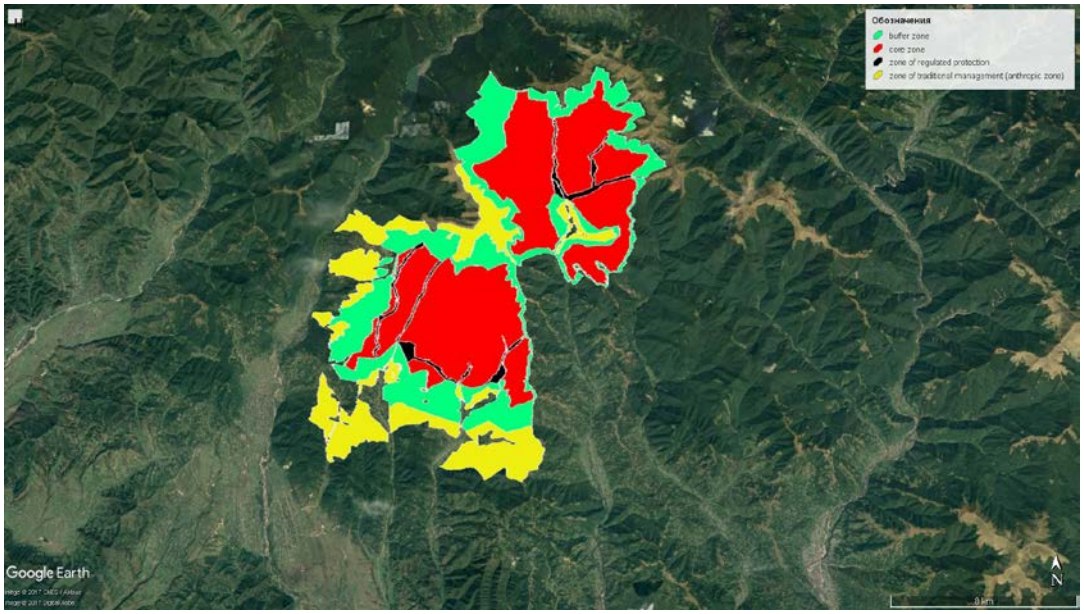


Fig. 60: The corridors for livestock in the Uholka-Shyrokyy Luh Wilderness are indicated in black © Carpathian Biosphere Reserve

Recommendations

The park management must continue to implement its communication strategy concerning the importance of having no livestock grazing in the Wilderness zone.	
Priority: Medium	Time Frame: 2020
The park management must focus on patrolling activities in the Transition zone e.g. the corridor between Velyka Uholka and Shyrokyy Luh.	
Priority: High	Time Frame: 2020

Fig. 61: Poloniny above Wilderness are used for grazing.

7.5.10. Criterion 5.10. The Wilderness zone has no agricultural activities

Reason for the Criterion

Agricultural activities are not compatible with Wilderness.

Current situation

The Wilderness zone has no agricultural activities.

Findings

The Wilderness zone has no agricultural activities.

7.5.11. Criterion 5.11. The Wilderness zone has no deadwood collection

Reason for the Criterion

Deadwood collection is not compatible with Wilderness.

Current situation

The Wilderness zone has no deadwood collection.

Findings

Deadwood collection has occurred in limited parts of the Wilderness zone (lower elevation) in the past centuries to supply fire wood for local people.

Deadwood is no longer collected in the Wilderness zone. It is not considered a threat.

Fig. 62: The Wilderness zone has no deadwood collection.

7.5.12. Criterion 5.12. The Wilderness zone has no commercial harvesting of berries, nuts or mushrooms

Reason for the Criterion

Commercial harvesting of berries, nuts and/or mushrooms is not compatible with Wilderness.

Current situation

There is no commercial harvesting of berries, nuts and/or mushrooms in the Wilderness zone.

Findings

Blueberries are commercially harvested above the tree line outside of the Wilderness zone.

Strengths

The harvesting of blueberries for commercial use occurs above the tree line outside of the Wilderness zone.

Weaknesses

The harvesting of blueberries for commercial use indirectly impacts the Wilderness zone.

Recommendations

The park management must develop and implement a strategy to minimise negative impacts of grazing and berry picking in the alpine zone at the northern boundary of Uholka-Shyrokyy Luh Wilderness (e.g. road erosion, illegal shelters, garbage).	
Priority: High	Time Frame: 2021
The park management must continue to monitor and control the collection of blueberries in the alpine zone above the Wilderness.	
Priority: Medium	Time Frame: 2020

7.5.13. Criterion 5.13. The Wilderness zone has no commercial collection of minerals

Reason for the Criterion

Commercial harvesting of minerals is not compatible with Wilderness.

Current situation

There is no commercial collection of minerals in the Wilderness zone.

7.5.14. Criterion 5.14. The Wilderness zone has no commercial filmmaking

Reason for the Criterion

Commercial filmmaking is not compatible with Wilderness.

Current situation

There is no commercial use of the Wilderness zone for filmmaking.

Findings

There is a growing number of filmmaking requests.

Strengths

Currently there is no commercial use of the Wilderness zone for filmmaking.

Weaknesses

Commercial use of the Wilderness zone for filmmaking has negative impacts on the Wilderness quality.

Recommendations

The park management must develop a clear strategy for commercial filmmaking in Uholka-Shyrokyy Luh Wilderness.

Priority: Medium Time Frame: 2023

7.6. Principle 6: Wilderness Disturbances

This principle focuses on the removal of permanent and temporary infrastructure, creating well-planned tourism access with minimal impact as well as regulating and limiting road access to the Wilderness, in order to reduce the human impact in the Wilderness zone.

Reason for the Principle

The Wilderness zone should not have any significant man-made disturbances.

The Wilderness zone should generally be free of infrastructure, commercial development and/or extractive uses. Disturbances would include, but are not limited to, permanent infrastructure, roads, permanent settlements, noise and light pollution.

The Restoration zone can include temporary man-made disturbances, such as infrastructure or other activities that might take place for a short period of time and do not leave any damage.

The focus lies on the removal of obsolete infrastructure, well-planned tourism access and strictly regulated and limited road access to the area, in order to secure minimum impact on the Wilderness zones.

Fig. 63: The Uholka-Shyrokyy Luh Wilderness zone has no significant man-made disturbances.

7.6.1. Criterion 6.1. The Wilderness zone has no permanent infrastructure

Reason for the Criterion

Permanent infrastructure is not compatible with Wilderness [1].

Current Situation

There was no permanent infrastructure in the Wilderness zone when the Uholka-Shyrokyy Luh Wilderness was established.

There are no paved roads in the Wilderness and Wilderness zone.

Findings

The Wilderness zone has no permanent infrastructure.

There is a shelter, bivouac and abandoned old forest houses which are used by local rangers and there is an abandoned and re-wilded small network of old gravel roads.

There is a newly renovated chapel at the border of the tree line above Mala Uholka.

There is no technical infrastructure in the case of a rescue event due to the remoteness of the area.

Strengths

The Wilderness zone has very limited, abandoned permanent infrastructure.

Weaknesses

There are some permanent abandoned old forest houses and a network of abandoned old gravel roads (Shyrokyy Luh) in the Wilderness zone.

There is a newly renovated chapel at the border of the tree line above Mala Uholka.

Narrow corridors for the transport of livestock are cutting the Wilderness zone in to eight fragments. These corridors are used randomly (usually twice a year) to connect the villages and the poloniny.

Recommendations

The park management must develop and update maps and inventories of the permanent infrastructure e.g. permanent abandoned old forest houses, shelter/ bivouac, the network of old abandoned gravel roads and of the patrol trails.	
Priority: High	Time Frame: 2021
The park management must monitor the permanent infrastructure e.g. permanent abandoned old forest houses, shelter/ bivouac, chapel, the network of old abandoned gravel roads and of the patrol trails.	
Priority: High	Time Frame: 2020

[1] *This criterion is directly linked to the IUCN Protected Areas Category Ia and 1b quality which states: Category Ia - Distinguishing features of this Category are … limiting access by people and excluding settlement. Category 1b - Protected Area Category 1b are usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.*

Fig. 64: There is a newly renovated chapel at the border of the tree line above Mala Uholka valley.

7.6.2. Criterion 6.2. Permanent infrastructures in the Restoration zone are removed according to the restoration plan, unless the removal is detrimental to the quality of the Restoration zone

Reason for the Criterion:

A part of the restoration process is to remove abandoned and disused infrastructure that is located in the Restoration zone.

Current Situation
There is no Restoration zone in Uholka-Shyrokyy Luh Wilderness.

Findings
There is no Restoration zone in Uholka-Shyrokyy Luh Wilderness.

7.6.3. Criterion 6.3. There is a management plan on how to deal with temporary structures (e.g. tents, picnic tables, housing containers, trailers, etc.) in the Restoration zone and Transition zone

Reason for the Criterion

Temporary structures in the Restoration and Transition zone can be used for various purposes (e.g. restoration work, interpretation and education, etc.) The management plan provides a framework for permitted types and sizes of these temporary structures to minimise negative impacts to the Wilderness zone.

Common temporary structures in the Restoration and Transition zone are tourist huts/shelters for visitors, which are equipped with orientation signs, maps, fire rings and interpretive panels.

Current situation

There is no Restoration zone in Uholka-Shyrokyy Luh Wilderness.

There are a few temporary structures in the Wilderness zone and in the Transition zone.

Findings

There is no Restoration zone in Uholka-Shyrokyy Luh Wilderness. Along the hiking trails in the Wilderness zone there is a very limited number of simple and necessary information signs.

In the Transition zone there are simple temporary structures, such as information signs, maps and interpretive panels, along the hiking trails. At the entry to Velyka and Mala Uholka, which is located in the Transition zone, there are information signs, picnics tables and shelters.

Strengths

The amount of temporary structures in the Wilderness zone and the Transition zone is reasonable and sufficient to provide basic information.

Weaknesses

The temporary structures in the Wilderness zone and the Transition zone need to be better maintained.

Recommendations

The park management must develop a strategy and management plan on how to deal with temporary structures in the Wilderness zone and the Transition zone.	
Priority: Medium	Time Frame: 2021
The park management must develop a map and inventory of all existing temporary structures in the Uholka-Shyrokyy Luh Wilderness.	
Priority: Medium	Time Frame: 2021
The park management must continue to monitor the usage of the existing temporary structures in the Uholka-Shyrokyy Luh Wilderness.	
Priority: Medium	Time Frame: 2020

7.6.4. Criterion 6.4. The Wilderness zone has no permanent settlements

Reason for the Criterion

Permanent settlements are incompatible with Wilderness..

Current situation

Uholka-Shyrokyy Luh Wilderness has no permanent settlements.

Findings

The nearest permanent settlement to the boundary of the Wilderness zone is 4 km away.

7.6.5. Criterion 6.5. There is a management plan to deal with inherited settlements in the Wilderness zone

Reason for the Criterion

There is a growing interest to create new or to enlarge existing Wilderness areas which requires knowledge on how to handle inherited settlements in the proposed Wilderness.

There are several options for the Wilderness managers:

- Exclude inherited settlements from the potential Wilderness (e.g. large active settlements)
- Accept them in the Wilderness (e.g. abandon settlements which could be restored to Wilderness)
- Use them for the benefit of Wilderness (e.g. information points for visitors) for which the management plan would need to set long-term objects and rules for usages as needed.

Current situation

There are no settlements in the Wilderness zone.

Findings

There are no settlements in the Wilderness zone.

7.6.6. Criterion 6.6. There is a management plan for the Wilderness to deal with inherited indigenous gathering sites (e.g. traditional reindeer herding sites in Nordic countries)

Reason for the Criterion

Indigenous people are by international or national legislation defined as people having a set of specific rights based on their historical ties to a particular territory. Their cultural or historical distinctiveness from other populations are often politically dominant.

Indigenous people still live a traditional way of life (e.g. hunting and fishing to make a living, reindeer grazing in a traditional manner, etc.) in some northern parts of Europe.

Their way of life is a rare example of humans coexisting with nature and often with Wilderness.

This criterion creates an opportunity to include these large areas in the European Wilderness Network.

Current situation

The Uholka-Shyrokyy Luh Wilderness has no inherited indigenous gathering sites.

Findings

There are no inherited indigenous gathering sites in Uholka-Shyrokyy Luh Wilderness.

7.6.7. Criterion 6.7. There is a management plan to deal with abandoned archaeological sites in the Wilderness zone

Reason for the Criterion

Wilderness sometimes hosts abandoned archaeological sites. Actively researched archaeological sites or those used by tourists should not be included in the Wilderness.

If archaeological sites are already a part of the Wilderness zone, the park management has to develop a plan to minimise negative impacts from research or the use as a tourist attraction.

Current situation

The Wilderness zone has no archaeological remains.

Findings

The Wilderness zone has no archaeological remains.

Fig. 65: The Uholka-Shyrokyy Luh Wilderness zone has no archaeological remains.

7.6.8. Criterion 6.8. There is no motorised transport in the Wilderness

Reason for the Criterion

Motorised transport is incompatible with Wilderness.

Motorised access is completely excluded from the Wilderness zone, with the exception of rescue or if necessary to implement restoration activities.

Motorised transport is limited to the Transition zone.

Current Situation

There is no motorised transport in the Wilderness zone and limited motorised transport in the Transition zone.

Findings

There is no motorised transport in the Wilderness zone and limited motorised transport in the Transition zone.

The network of old gravel roads in the Transition zone is only used by Wilderness rangers and forest managers, and occasionally locals for off-road activities. However, poor road conditions significantly limit motorised access to the vicinity of the Wilderness Zone.

In the Transition zone the state foresters have motorised access to their property by using the existing gravel roads. These existing gravel roads are also used by locals, particularly to access the poloniny in summer and autumn.

Along the east and north boundaries of the Wilderness zone there is a gravel road at the ridge (watershed) that is used to access a poloniny. This road is outside of the Uholka-Shyrokyy Luh Wilderness but provides access to the vicinity of Wilderness.

Strengths

There is no motorised transport in the Wilderness zone and only limited motorised transport in the transition zone.

Motorised transport is not permitted in the Transition zone, except by staff and foresters for activities related to the management of the Transition zone.

There are many kilometers of abandoned gravel roads in the Wilderness zone in different stages of spontaneous self-regeneration.

Weaknesses

Locals occasionally use the gravel roads in the Transition zone and there is no intention to cease or discourage this activity. There is no data on the frequency of unauthorised use.

Along the east and north boundaries of the Wilderness zone there is a gravel road at the ridge (watershed) used to access a poloniny.

Recommendations

The park management must monitor the frequency and impact of unauthorised use of the old gravel forest roads in the Wilderness.	
Priority: High	Time Frame: 2020
The park management must develop awareness activities and a protection regime for amphibians during their reproduction seasons (newt in the Shyrokyy Luh)	
Priority: High	Time Frame: 2020
The park management should monitor the intensity of the use of the gravel road along the east and north boundaries.	
Priority: Low	Time Frame: 2023

Fig. 66: Old forest roads in the transition zone create access corridors to the Uholka-Shyrokyy Luh Wilderness.

7.6.9. Criterion 6.9. There is free access by foot to the Wilderness

Reason for the Criterion

Access by foot is the main manner to visit the Wilderness, in particular the Wilderness zone. In addition, monitoring and patrolling of the Wilderness zone is conducted by foot.

Current Situation

The Wilderness zone is only partially accessible by foot.

Free access by foot is not permitted to the Wilderness zone with the exception of two marked trails in parts of the Wilderness zone (Mala and Velyka Uholka). There is an obligation for visitors to register, to stay on the marked paths and to pay an entrance fee. The Carpathian Biosphere Reserve also offers visitors a guiding through the Wilderness zone with local rangers.

There are a few kilometres of marked trails that go through the Wilderness zone (Mala Uholka – 5 km and Velyka Uholka – 4.5 km). These marked trails are used by outdoor enthusiasts.

The existing trails are narrow, just broad enough for a single person, with a trail width of about 40-50 cm.

The number of users on trails is monitored and currently very low. Trails are well maintained. Access to the sensitive areas such as rocky outcrops or caves is not permitted.

The trails are maintained with simple instruments by the Wilderness rangers. The present level of trail maintenance and markings should be maintained at the current level. No new trails should be open within the Wilderness zone.

Findings

There are only a few kilometres of marked trails providing access to the Wilderness zone. The existing trails are minimally marked with coloured signs, either on trees or stones. These signs are sporadically maintained.

There are no marked trails for mountain bikes within the Wilderness zone. Bikes are not permitted in the Wilderness zone.

The Wilderness zone is a popular destination to explore and learn about old-growth beech forests.

Strengths

The protected area offers an excellent Wilderness experience. Two hiking trails offer a unique perspective of the largest old-growth forest in the Carpathians. The trails are not open in winter.

Weaknesses

There is increasing pressure to open up new trails in Wilderness zone and a growing pressure to include a cave visit into the trails loop.

Recommendations

The park management must avoid the installation of new trails in the Wilderness zone and not include a cave visit in the existing trail network.	
Priority: High	Time Frame: 2020
The park management must continue the monitoring of visitor impact along the official trails in Mala and Velyka Uholka.	
Priority: High	Time Frame: 2020

Fig. 67: The Wilderness zone is only partially accessible on foot for public.

Fig. 68: Field discussions are focusing on free access by foot into the Wilderness.

7.6.10. Criterion 6.10. The Wilderness zone has no noise pollution

Reason for the Criterion

It is important to exclude noise pollution from the Wilderness. Noise pollution is incompatible with Wilderness.

Noise pollution has negative environmental consequences for Wilderness. Human-induced noise pollution is one of the many factors contributing to the depletion of wildlife populations. Noise pollution significantly intrudes on the environment and Wilderness experience.

Current Situation

There is minimal noise pollution in the Wilderness zone.

The noise intrusion is minimal and any kind of machinery is normally not heard in the area due to its remoteness from roads and villages. Flights over the Wilderness travel at high altitudes and aircraft condensation trails are a regular sight but the acoustic impact is low. Noise from helicopters is currently not an issue.

Findings

There is minimal noise pollution in the Wilderness zone.

Strengths

The Wilderness and particularly the Wilderness zone have minimal noise pollution. The whole Wilderness zone is free of noise pollution, which has been verified by overnight stays at the south side of the Wilderness zone (Mala, Velyka Uholka and Shyrokyy Luh).

None of the forest huts and shelters in the Wilderness zone have electricity generators which would produce noise.

Weaknesses

The park management does not monitor noise pollution in the Wilderness zone.

Recommendations

The park management must develop a random monitoring scheme for noise pollution in the Wilderness zone.

Priority: Low Time Frame: 2022

7.6.11. Criterion 6.11. The Wilderness zone has no light pollution

Reason for the Criterion

It is important to exclude light pollution from the Wilderness as light pollution is incompatible with Wilderness.

Plants and animals depend on Earth's daily cycle of light and dark, a rhythm that governs life-sustaining behaviours, such as reproduction, nourishment, sleep and protection from predators. Artificial light at night has negative and deadly effects on many animals, including amphibians, birds, mammals, insects and plants.

The source of most of the light pollution in Wilderness is from cities, machines, transport systems, motor vehicles or lone, remotely located tourism structures.

Light pollution significantly intrudes on the ecology and experience of Wilderness.

Current Situation

There is minimal light pollution in the Wilderness zone.

Findings

There is minimal light pollution in the Wilderness zone due to its distance from urban areas. This has been verified by overnight stays at the south side of Wilderness zone (Mala, Velyka Uholka and Shyrokyy Luh).

Strengths

There is no light pollution in the Wilderness zone. It is a remote, dark area. The Transition zone has minimal light pollution coming from settlements and villages located at the foothills of mountains several kilometres from the south boundaries of the Wilderness zone.

Weaknesses

Small amounts of light pollution come from settlements and villages located at the foothills of close-by mountains.

Recommendations

The park management must develop a random monitoring scheme for light pollution in Wilderness zone.
Priority: Low Time Frame: 2022

7.6.12. Criterion 6.12. The Wilderness zone has no visual distractions on the horizon

Reason for the Criterion

It is important to exclude any visual distractions on the horizon from the Wilderness as they are incompatible with Wilderness.

Visual distractions on the horizon have negative impacts on the Wilderness experience. The sources of most visual distractions are from cities, towers and lone, remotely located tourism structures.

Current Situation

The Wilderness zone has minimal visual distractions on the horizon.

Findings

The Wilderness zone has minimal visual distractions on the horizon.

The Wilderness zone is a remote area with minimal visual distractions on the horizon. The dense beech forest provides a limited view to the surroundings and so there are minimal visual distractions visible from the Wilderness zone. However, above the tree line (particularly north from the Wilderness boundaries), where one has a long and wide panorama view, this issue starts to be more important and needs to be taken into account.

The most visible visual distraction on the horizon is a transmitter tower at the top of Topas peak, north from Shyrokyy Luh.

Strengths

The Wilderness zone has minimal visual distractions on the distant horizon. The dense forest and the ring of the mountains significantly minimise visual distractions.

Weaknesses

The most visible visual distraction on the horizon is a transmitter tower at the top of Topas peak, north from Shyrokyy Luh.

Recommendations

The park management must carry out a visual distraction assessment with a focus on identifying visual disturbance in the Wilderness zone.

Priority: Low Time Frame: 2023

7.6.13. Criterion 6.13. The Wilderness has no garbage pollution

Reason for the Criterion

It is important for the Wilderness to be free of litter. Garbage pollution is incompatible with Wilderness.

Garbage pollution has negative environmental impacts and lowers the Wilderness experience. The main source of garbage pollution is from visitors or previous land users (e.g. forestry, agriculture, tourism, hunters, etc.) who left debris or waste.

Current Situation

The Wilderness zone is fairly clean.

Findings

Garbage pollution is not a serious problem in the Wilderness zone. However, areas with a high concentration of people, along the trails and at the entry to the Wilderness zone, are facing this problem. In particular the trail to the Velyka Uholka (above village) is affected.

Garbage pollution is a serious problem in the Transition zone, above the tree line and particularly around the shepherd houses and shelters where shepherds live during summer and blueberry collectors concentrate during berry picking season.

Strengths

The Wilderness zone is fairly clean.

The Uholka-Shyrokyy Luh Wilderness has an internal strategy to keep the Wilderness zone clean.

Weaknesses

The Uholka-Shyrokyy Luh Wilderness has no official carry-in carry-out policy.

Garbage pollution is a serious problem in the Transition zone, at the entry point to the Wilderness zone, above the tree line and in particular around the shepherd houses and shelters.

The surrounding villages have no strategy on how to deal with garbage.

Recommendations

The park management, together with the local partners, must monitor garbage pollution in the Uholka-Shyrokyy Luh Wilderness.
Priority: High Time Frame: 2020

The park management must organise systematical garbage cleanings with rangers and local people (particularly at the entry to Mala and Velyka Uholka).
Priority: High Time Frame: 2021

The park management, together with the local partners, must develop and implement training programmes for employees, locals and visitors with a focus on garbage management in the Uholka-Shyrokyy Luh Wilderness.
Priority: High Time Frame: 2021

7.6.14. Criterion 6.14. There are no recreational fire pits in the Wilderness zone

Reason for the Criterion

Making fire pits in the Wilderness is a very complex issue throughout Europe due to the risk of fire, and consequently there are many additional local regulations. In many European countries camp fires, particularly in forests, are strictly forbidden or regulated.

Fire pits are suitable in the Transition zone to provide opportunities for visitors to have this type of Wilderness experience but need to be carefully planned.

Current Situation

Recreational fire pits are not permitted in the Wilderness zone. In the Transition zone they are allowed in designated spots.

Findings

Recreational fire pits are not allowed in the Wilderness zone. In the Transition zone they are made in designated spots, nearby picnic spots.

Strengths

Recreational fire pits are not allowed in the Wilderness zone. In the Transition zone they are permitted only in designated spots.

The Uholka-Shyrokyy Luh Wilderness has a strategy how to deal with recreational fire pits.

Weaknesses

Recreational fire pits are randomly made in Transition zone.

Recommendations

The park management must develop a strategy and plan on how to deal with recreational fire pits in the Uholka-Shyrokyy Luh Wilderness.
Priority: High Time Frame: 2021

The park management must monitor the number and condition of recreational fire pits in the Uholka-Shyrokyy Luh Wilderness.
Priority: High Time Frame: 2020

The park management must organise rangers, together with local people, to maintain recreational fire pits in the Uholka-Shyrokyy Luh Wilderness.
Priority: High Time Frame: 2020

7.6.15. Criterion 6.15. There are rules for the use of horses in the Wilderness zone

Reason for the Criterion

The use of horses occurs in some Wildernesses areas together with hiking. Horses are usually used for patrolling in large Wilderness areas but they also help to implement various projects and support research and monitoring measures. Horses are also seen as a favourable way to experience Wilderness.

However, intensive use of horses can have negative impacts on trails (e.g. erosion, mud, damage of trail, etc.) as well as on the experience of hikers. Therefore, managers have to keep the conflicts that could arise with hikers in mind (e.g. hiking on muddy trails should not be part of their experience) before using horses in the Wilderness.

Management techniques should include:

- separation of hiking trails and horseback riding trails (where suitable)
- limit horseback riding groups
- exclude horseback riding from sensitive areas (e.g. wet areas, meadows, etc)

Combining the use of horses and hikers in the Wilderness needs to be carefully planned.

Current situation

The use of horses is not permitted in the Wilderness zone.

Findings

Horses are not used in the Wilderness zone.

7.6.16. Criterion 6.16. The Wilderness zone has no fencing

Reason for the Criterion

It is important to have fence-free Wildernesses. Fences are incompatible with Wilderness.

Fencing has negative impacts on the environment and on the Wilderness experience. It creates barriers and can cause injury, even death, for animals.

Current situation

Fencing is not permitted in the Wilderness zone.

Findings

There is no fencing in the Wilderness zone.

7.6.17. Criterion 6.17. There are rules about dogs in the Wilderness zone

Reason for the Criterion

Hiking with dogs is a great way to spend time in nature for many people but doing so in the Wilderness can impact both the land, wildlife and the dogs themselves. An uncontrolled dog can injure other hikers and/or wildlife. To minimise these threats, rules for dogs (or any other pet) are necessary.

Dogs are allowed with regulations in some Wilderness areas whereas they are not permitted in others. Some Wilderness areas do not have regulations about dogs.

Current situation

Visitors are not allowed to take dogs to the Wilderness zone.

Findings

Visitors do not take dogs to the Wilderness zone.

Strengths

Visitors are not allowed to take dogs to the Wilderness zone.

Recommendations

The park management must continue with the strategy to exclude dogs and other pets from the Wilderness zone.

Priority: High Time Frame: 2020

Fig. 69: There are clear rules for visitors and recreational activities in the Carpathian Biosphere Reserve

7.6.18. Criterion 6.18. The Wilderness has a minimal impact visitor and recreational use strategy

Reason for the Criterion

Visitors and recreation activities are becoming more risky in many protected areas in Europe. To combine Wilderness conservation with the opportunity to experience this unique environment the park management must implement and raise awareness about the concept of "Leave No Trace". Visitors and recreational activities in a Wilderness require careful planning and rules.

Current Situation

Visitors and recreational activities have a short history in the Uholka-Shyrokyy Luh Wilderness. The original concept, developed in 1992, created a strict reserve in the manner of IUCN Ia. From the perspective of visitors and recreational use the area was a no-go zone, with the main objective to protect and research this area.

12 years ago, the management of the Carpathian Biosphere Reserve came to the conclusion that Uholka-Shyrokyy Luh Wilderness is an exceptionally valuable example of WILDForest, worthy to share with visitors. Two newly developed trails opened the possibility to explore the virgin forest of Uholka-Shyrokyy Luh.

The Mala Uholka Trail and the Velyka Uholka Trail were developed to experience the unique old-growth forest. These trail-loops provide opportunities for visitors to explore and learn the values of this old growth beech forest. In the following years the Uholka-Shyrokyy Luh Wilderness zone became a well-known destination for Ukrainian as well as for foreign visitors.

From the beginning strict control measures for visitors have been implemented:

- People require a ticket, which they can purchase in the local Carpathian Biosphere Reserve office in Kitcherely (Mala Uholka), to visit the area. Parking and camping areas are available close to the trailheads, as well as a place to eat and rent a room. For more detailed information people have to contact the Carpathian Biosphere Reserve headquarter in Rachiv.
- The Carpathian Biosphere Reserve offers guided tours with scientists to explore the virgin forests in the Mala Uholka Trail and the Velyka Uholka.

The number and behaviour of visitors have been controlled from the beginning and the trails are regularly monitored and maintained.

Findings

The newly opened trails in the Wilderness zone are a reason for many people to visit this area, despite the difficult access (long dusty roads).

In order to visit these areas, the visitors have to register at the main office in Rachiv and are usually accompanied by a local ranger. The two trails in Mala Uholka and Velyka Uholka welcome visitors in the period of April - November.

The trails are visited by ca 500 visitors per year. Several others visitor activities, such as hiking, berry picking and sunbathing happen in the Transition zone and in the surroundings.

During the audit no evidence of degradation due to visitor activities was visible in these areas. The only exception was in the vicinity to the northern boundary, close to the tree line, where impacts of alpine grazing and commercial berry picking were visible.

Strengths

There are rules for visitors and recreational activities in the Wilderness zone.

Due to nature conservation rules and the remoteness of the area and difficult terrain, the access to the Wilderness zone is limited.

The Uholka-Shyrokyy Luh Wilderness has a high potential to develop a specific Wilderness focused experience. This could focus on small-scale, diverse groups of specialist and visitors.

The committed and knowledgeable staff (although need training on how to communicate with visitors) have many ideas on how to make a visit to this area attractive without only spending time in Uholka-Shyrokyy Luh Wilderness.

Trails are a very good opportunity to create a good example of how to implement the concept of "Leave No Trace".

Weaknesses

There is no minimal impact visitors and recreation strategy to support the idea of Wilderness conservation. The area is not working with the "Leave No Trace" concept.

The area is missing high quality topographic maps for the public, for hiking, biking or skiing, with clear borders of the Carpathian Biosphere Reserve and Uholka-Shyrokyy Luh Wilderness which are available in the local ranger station. Consequently, people are missing basic orientation.

The tourism potential is limited due to poor road access to Mala Uholka and Velyka Uholka, a bad public transportation network and a lack of tourism infrastructures. To improve this situation, high financial investments would be necessary to develop sustainable tourism as well as more human capacity to maintain a high-quality Wilderness experience.

Recommendations

The park management must continue the maintenance of tourist trails as well as the cleaning of the touristic areas.	
Priority: High	Time Frame: 2021
The park management must develop a concept to implement "Leave No Trace" for Uholka-Shyrokyy Luh Wilderness.	
Priority: High	Time Frame: 2021
The park management must develop a comprehensive communication concept for visitors of Uholka-Shyrokyy Luh Wilderness. This concept should include: maps, leaflets, brochures, stickers, pin.	
Priority: High	Time Frame: 2021

Fig. 70: The park management must develop a concept to implement "Leave No Trace" for Uholka-Shyrokyy Luh Wilderness.

7.6.19. Criterion 6.19. The Wilderness has an integrated visitor and recreation strategy to support the Wilderness concept

Reason for the Criterion

Visitor management should always be corresponding with the overall site management objectives.

Wilderness managers are mandated to protect the Wilderness as pristine as possible but also allow people to visit the area. This balance requires complex activities that need time and resources to be implemented effectively.

The management plans need to be reviewed regularly to determine their impacts on the Wilderness experience. The numbers of people visiting Wilderness is increasing, so the impacts of their stays need to be monitored.

Current Situation

The Carpathian Biosphere Reserve has a simple, integrated visitor and recreation strategy. The Uholka-Shyrokyy Luh massif was not the priority of this strategy because the objective of this area was to protect the Wilderness and therefore it was a no-go zone for people.

There is a growing need to develop an integrated visitor and recreation strategy because the increasing number of visitors in Velyka and Mala Uholka are creating more visible impacts with their activities. This strategy has to support the Wilderness concept.

The Wilderness zone is not accessible during winter due to its remoteness and field conditions (snow pack).

Findings

Uholka-Shyrokyy Luh Wilderness has become a well-known destination for many Ukrainian and foreign visitors in the last few years.

Strengths

There is a clear concept to allow people visit Uholka-Shyrokyy Luh Wilderness. There are two clearly defined and well-marked loop trails that are recommended to use with a local Wilderness ranger or scientist as a guide.

Uholka-Shyrokyy Luh Wilderness has great potential to become a well-known and carefully managed Wilderness. Therefore, the development of an integrated visitor and recreation strategy, which supports the Wilderness concept, is needed.

Weaknesses

The Wilderness management is underestimating the importance of an integrated visitor and recreation strategy to prevent future damages to the Wilderness.

There are a number of activities (i.e. tourism, forestry, hunting and motorised access) that are permitted outside the Wilderness in the surrounding forests and villages. These activities, if uncontrolled, could negatively impact the conservation objectives in the Wilderness zone.

Recommendations

The park management must develop an updated integrated visitor and recreation strategy for the Uholka-Shyrokyy Luh Wilderness, which includes training and communication to support the idea of Wilderness.	
Priority: High	Time Frame: 2022
The park management must involve a wide spectrum of local stakeholders (including local foresters and shepherds) to update the integrated visitor and recreation strategy for the Uholka-Shyrokyy Luh Wilderness.	
Priority: High	Time Frame: 2022
The park management must update the rules for the Uholka-Shyrokyy Luh Wilderness visitor use. In general, groups should be limited to six people and should always be accompanied by a ranger.	
Priority: High	Time Frame: 2021
The park management must continuously monitor the visitor impact on Uholka-Shyrokyy Luh Wilderness in general and particularly in the Wilderness zone.	
Priority: High	Time Frame: 2021
The park management must develop an information communication strategy to explain the Wilderness tourism access plan to stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.	
Priority: High	Time Frame: 2021
The park management must concentrate the majority of visitor activities in the Transition zone.	
Priority: Medium	Time Frame: 2020

7.7. Principle 7: Control strategies for fire, disease, invasive species, and other dynamic natural processes

Ecological disturbances are one of the most profound aspects of Wilderness. Natural dynamic processes, like windstorms, are important sculptors of landscape and habitats. However, they are often considered problematic and undesirable by humans.

Reason for the Principle

Ecological disturbances through natural dynamic processes are a fundamental part of Wilderness dynamics.

The characteristics of ecological disturbances are not always well understood by park managers and a dilemma often occurs relating to the scale and how to respond to them.

Even though the implementation of a let it go-policy is difficult in human-dominated landscapes, neophyte and invasive species must not be managed in the Wilderness zone.

Fig. 71: Ecological disturbances are a fundamental part of the Wilderness dynamic.

7.7.1. Criterion 7.1. There is a fire management plan for the Wilderness and the Wilderness zone. Fire must not be suppressed in the Wilderness zone

Reason for the Criterion

There is not always a good understanding of the ecological role of fire in Wilderness. There are very few areas in Europe where fire management is used as a tool to maintain and protect biodiversity. There is a growing recognition that fire plays an important role in natural ecosystems. Therefore, it is important to communicate the importance of fire and a let-it-burn policy.

Current Situation

The Ukrainian law requires the suppression of forest fires and fines are imposed if this is not done. So, in practice the protected area is subject to fire control measures.

Fire ecology is a complex and difficult issue in Central Europe. There are conflicting opinions and the implementation of a let-it-burn policy (or even prescribed fire) is a difficult subject and a long-term process.

Beech and broadleaf forests in general are very fire-resistant habitats.

Findings

Uholka-Shyrokyy Luh Wilderness cannot implement any type of let-it-burn policy as it conflicts with national laws. Fire management is a very difficult issue to communicate politically.

Man-made fires in the area mainly originate from the poloniny, settlements at the south and actively managed forests around the Wilderness.

Strengths

Uholka-Shyrokyy Luh Wilderness is a natural fire-resistant habitat.

Weaknesses

There is no research paper or documentation on the subject of fire history in Uholka-Shyrokyy Luh Wilderness available.

Only a very limited number of the park managers understand the importance of fire as an ecological process in Uholka-Shyrokyy Luh Wilderness.

There is no communication in regards to this subject. Therefore, it would be a long-term goal that needs more time and education, to improve the situation.

Recommendations

The park management continues the research on fire history of the Uholka-Shyrokyy Luh Wilderness.

Priority: High Time Frame: 2021

The park management must continue the monitoring of the frequency of fire in the Uholka-Shyrokyy Luh Wilderness.

Priority: High Time Frame: 2021

The park management should limit fire control measures to the Transition zone in case they are necessary and only if these measures do not cause long-term impacts on the Wilderness zone.

Priority: Medium Time Frame: 2020

The park management must develop a fire management stewardship plan for the Uholka-Shyrokyy Luh Wilderness.

Priority: Low Time Frame: 2022

The park management must develop education and interpretation activities explaining the role of fire in ecosystem dynamics and consequently the role of fire management and a let-it-burn policy, with a focus on Wilderness managers, the public and visitors.

Priority: High Time Frame: 2021

Fig. 72: Beech and broadleaf forests in general are very fire-resistant habitats.

7.7.2. Criterion 7.2. The Wilderness has a disease control plan

Reason for the Criterion

There is not always a good understanding of the ecological role disease plays in Wilderness. Consequently, there are very few areas in Europe where park managers implement disease management as a tool to maintain and protect biodiversity. However, there is a growing recognition that disease plays an important role in natural ecosystems. Wilderness is a place where a let-it-fly policy for disease management should be implemented and where its importance should be communicated to the public.

Current Situation

The Ukrainian law requires the control of threats from disease outbreaks. In practice this means that Wilderness areas are supposed to have regular disease control monitoring measures.

Findings

The Park management understands the importance of disease outbreaks for ecological processes.

The current legislation supports the implementation of a let-it-fly policy inside the strictly protected zone.

Bark beetle is not an issue in the Uholka-Shyrokyy Luh Wilderness due to the habitat and trees species composition.

Wildlife diseases are currently not an issue in the Uholka-Shyrokyy Luh Wilderness.

Strengths

The park management understands the importance of disease outbreaks for ecological processes.

It is accepted that disease outbreaks in the Wilderness zone are a part of the management policy. There is no active disease management in the Wilderness zone.

The current legislation supports the implementation of a let-it-fly policy.

The strict implementation of this principle provides good arguments to support Wilderness conservation in Europe.

Weaknesses

The forestry sector and also parts of the public do not accept a let-it-fly policy.

There is a limited number of studies and monitoring projects providing solid arguments to support a let-it-fly policy inside the Uholka-Shyrokyy Luh Wilderness.

Recommendations

The park management must continue research on the history and dynamics of spontaneous disease outbreaks.	
Priority: High	Time Frame: 2019
The park management must develop a disease outbreak stewardship plan for the Uholka-Shyrokyy Luh Wilderness.	
Priority: Low	Time Frame: 2022
The park management must develop education and interpretation activities explaining the importance and the role of a let-it-fly policy to the stakeholders, visitors and the general public.	
Priority: High	Time Frame: 2019
The park management should limit disease control measures to the Transition zone in case they are necessary and only if these measures do not cause long-term impacts on the Wilderness zone.	
Priority: Medium	Time Frame: 2023

Fig. 73: The current legislation supports the implementation of a let-it-fly policy.

7.7.3. Criterion 7.3. A neophyte and invasive species management plan has been developed for the Wilderness

Reason for the criterion

Invasive species are a significant threat to native habitats. Species are considered invasive if they are not native to the particular habitat under consideration. An established population causes or is likely to cause environmental harm.

Nevertheless, attempts to control invasive species are often accompanied with considerable interventions into natural processes. Therefore, invasive species control is not allowed in the Wilderness zone and if absolutely necessary must be limited to the Restoration and/or Transition zone. An invasive species control plan provides strategies and recommendations for invasive species prevention, survey, detection and ultimately control. It also addresses appropriate habitat restoration, staff training and public outreach and education.

Current Situation

Currently, there is no knowledge on invasive species threatening the Wilderness zone.

Findings

Invasive species are not a major issue currently.

Strengths

The park policy states that invasive species are not tolerated within the Wilderness zone. Based on the current research and monitoring projects there are no serious threats of invasive species in the Wilderness zone. Invasive species are subject to random monitoring measures.

Weaknesses

There are already several documented aggressive invasive species such as, Impatience, Heracleum and Ambrosia in the surroundings, in particular in the north (at the grazed poloniny) and south sides along the access roads and rivers, of Uholka-Shyrokyy Luh Wilderness. It will be a challenging task to prevent and control invasive species attacks on the Uholka-Shyrokyy Luh Wilderness. Invasive species attacks can occur spontaneously, therefore, it is important to be proactive by having an invasive species control plan.

Recommendations

The park management must continue to research and monitor neophyte and invasive species in order to improve their knowledge on invasive alien species that could potentially threaten the Wilderness zone.	
Priority: Medium	Time Frame: 2020
The park management must develop an invasive species stewardship plan to prevent incursion of invasive species into the Wilderness.	
Priority: Medium	Time Frame: 2023
The park management must develop education and interpretation activities focusing on neophyte and invasive species.	
Priority: Medium	Time Frame: 2021
The park management must limit all neophyte and invasive alien species control activities to the Transition zone.	
Priority: Medium	Time Frame: 2020

7.7.4. Criterion 7.4. There is a plan for natural dynamic processes

Reason for the Criterion

There is a number of other natural dynamic processes besides fire, such as wind, climatic extremes (i.e. drought, hailstorms and heat waves), floods, volcanic eruptions, and earthquakes that shape our landscapes.

A natural dynamic process can cause loss of life or property damage and might leave some economic damage in its wake, but simultaneously these are important players of ecosystem dynamics.

Current Situation

Visitors and people living around the Uholka-Shyrokyy Luh Wilderness feel that the occurrence of natural disturbances and the frequency of climate extremes have been increasing in the last years. However, few people understand that natural disturbances play a key role in ecosystems dynamics.

Findings

The Uholka-Shyrokyy Luh Wilderness provides a good opportunity to study and monitor impacts of natural disturbances.

Due to the character of the Wilderness zone there is a number of spontaneous, dynamic natural events, such as wind storms and climatic extremes.

Strengths

Uholka-Shyrokyy Luh Wilderness is impacted by natural events.

Due to the character of the Wilderness zone there is number of spontaneous, dynamic natural events, such as wind storms and climatic extremes. The series of ongoing wind outbreaks have opened the compact broadleaf canopy in many locations. These openings vary in their size from 0.5 ha to 20-80 ha.

These natural events are an important part of the natural dynamism of the Uholka-Shyrokyy Luh Wilderness zone and are therefore protected.

Weaknesses

Some members of the public and politicians consider these wind-made openings a threat to Uholka-Shyrokyy Luh Wilderness.

Recommendations

The park management must continue to research and monitor natural dynamic processes, such as wind storms, climatic extremes, avalanches and rock falls.	
Priority: High	Time Frame: 2020
The park management must develop a natural processes stewardship plan for the Uholka-Shyrokyy Luh Wilderness.	
Priority: High	Time Frame: 2022
The park management must develop an information communication strategy explaining the role of natural dynamic processes in the Wilderness zone to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.	
Priority: High	Time Frame: 2021

7.7.5. Criterion 7.5. The Wilderness zone is impacted by permafrost

Reason for the Criterion

Permafrost is permanently frozen soil and occurs mostly in high-latitudes and in the high mountains. Permafrost stores massive amounts of carbon and warming permafrost can bring negative consequences in terms of ecosystem and infrastructure damage.

As a result of climate change, permafrost is at risk of melting and releasing the stored carbon in the form of carbon dioxide and methane, which are powerful heat-trapping gases. In addition, permafrost is structurally important and its melting causes erosion, disappearance of lakes, landslides and ground subsidence. It might also cause changes in the plant species composition of high latitudes.

Current Situation

The Uholka-Shyrokyy Luh Wilderness and the entire protected area does not have any permafrost.

Fig. 74: The Uholka-Shyrokyy Luh Wilderness provides a good opportunity to study and monitor impacts of natural disturbances.

7.8. Principle 8: Wilderness research and monitoring

Wilderness offers opportunities to study the unique attributes of nature and natural processes. High quality Wilderness research and monitoring allows park managers to make appropriate decisions regarding the Wilderness. Research and monitoring activities should never be invasive in their character.

Reason for the Principle

Early Wilderness stewards did not have a large amount of research and/or monitoring resources, so they relied on instinct and personal experience to guide them. Wilderness stewards today have access to a growing body of literature related to defining, stewarding, and monitoring Wilderness.

Wilderness research and monitoring explores complex, long-term natural and social issues related to Wilderness stewardship. It is a catalyst for synergistic, interdisciplinary activities that confront Wilderness stewards..

Fig. 75: Wilderness offers opportunities to study the unique attributes of nature and natural processes.

7.8.1. Criterion 8.1. There is a Wilderness monitoring and research strategy

Reason for the Criterion

A Wilderness research and monitoring strategy is an important tool for the decision-making process. It helps to improve knowledge on Wilderness in order to implement management measures more effectively and to meet conservation objectives.

Any decision regarding Wilderness stewardship should have had research done prior to the decision being made. Research is the key to successful Wilderness stewardship.

Current Situation

There is a designed Wilderness research and monitoring plan which focuses on the Uholka-Shyrokyy Luh Wilderness. The new long-term research and monitoring plan is currently in development. This plan includes Wilderness research and Wilderness restoration.

Wilderness research and monitoring are important management aspects, in particular in the Wilderness zone. The management plan includes a list of research and monitoring priorities (e.g. dynamism of forest ecosystems in Wilderness zone, management of herbivores, inventory of Wilderness indicator species).

Findings

There are completed and ongoing research projects which focus on Wilderness and biodiversity. The outcome of this work confirms that the Carpathian Biosphere Reserve is one of the most important biodiversity hotspots in Ukraine and that the Uholka-Shyrokyy Luh Wilderness significantly contributes to the conservation of biodiversity.

Research projects documenting activities and previous extractive uses in Wilderness zone are currently developed.

Some research activities in the Wilderness zone already implement minimum intervention principles.

Strengths

A number of studies have been done since the Carpathian Biosphere Reserve was created. There are research projects that focus on Wilderness (e.g. mapping and monitoring of dynamic of old growth beech forest). There is an annual standardised and systematic reporting system for research and monitoring activities in the Carpathian Biosphere Reserve.

The management team produces the annual report – Letopis prirody. It is an internal document in Ukranian summarising the annual outcomes and is based on a unified system all over the country. The document is approved by the ministry.

There are several ongoing monitoring activities with a focus on developments in the Wilderness and the transition zone. Monitoring focuses on dynamics in the Uholka-Shyrokyy Luh Wilderness.

The research and monitoring team has collected a lot of information and through that gained experience regarding spontaneous developments of the biocenosis in the Wilderness zone and the biodiversity in old-growth beech forests.

Weaknesses

Wilderness focused research and monitoring is struggling with limited funding. This also restricts the ability to share Wilderness research and monitoring experience with the European Wilderness Network. Limited funding is also restraining the implementation of research and monitoring on minimum intervention principles.

There is a lack of scientific outcome (Wilderness arguments) that is available in English.

Recommendations

The park management should continue to implement a long-term Wilderness monitoring and research strategy including topics such as forest ecosystems, herbivores and visitor management.	
Priority: High	Time Frame: 2020
The park management must develop a research and monitoring line focusing on collecting data on Wilderness restoration.	
Priority: Medium	Time Frame: 2022

Recommendations

The park management must improve its coordination with other Wilderness areas (e.g. unify their GIS systems and research methodology among partners focusing on Wilderness research).	
Priority: Medium	Time Frame: 2021
The park management must monitor the impact of research and monitoring activities, particularly in the Wilderness zone.	
Priority: Medium	Time Frame: 2022
The park management should provide an annual summary (also in English) of important outcomes of its Wilderness research and monitoring programme to the partners of the European Wilderness Network.	
Priority: High	Time Frame: 2022
The park management must invest in non-invasive monitoring methods and minimise all visible and ecological impacts of research and monitoring activities within the Wilderness zone.	
Priority: High	Time Frame: 2020
The park management must develop an information communication strategy explaining the importance of a Wilderness monitoring and researching strategy to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.	
Priority: High	Time Frame: 2020

Fig. 76: The Uholka-Shyrokyy Luh Wilderness management must minimise ecological impact and visibility of research and monitoring activities within the Wilderness zone.

7.8.2. Criterion 8.2. There is a monitoring system which documents activities and extractive uses in the protected area

Reason for the Criterion

A monitoring system for activities and extractive uses in a protected area is an important tool for the decision-making process. It helps to improve knowledge on activities and uses within and around the Wilderness and how these activities and uses impact the Wilderness in the short and long-term. This enables management measures to be implemented more effectively and to meet conservation objectives.

Current situation

There is a designed Wilderness research and monitoring plan which focuses on the Uholka-Shyrokyy Luh Wilderness. The new long-term research and monitoring plan is currently in development. This plan includes Wilderness research and Wilderness restoration.

The management plan includes a list of research and monitoring priorities (e.g. dynamism of forest ecosystems in Wilderness zone, management of herbivores, inventory of Wilderness indicator species).

Findings

There are completed and ongoing research projects which focus on Wilderness and biodiversity.
Research projects documenting activities and previous extractive uses in Wilderness zone are currently developed.

Some research activities in the Wilderness zone already implement minimum intervention principles.

Strengths

A number of studies have been done since the Carpathian Biosphere Reserve was created. There is an annual standardised and systematic reporting system for research and monitoring activities in the Carpathian Biosphere Reserve.

There are several ongoing monitoring activities with a focus on developments in the Wilderness and the transition zone. Monitoring focuses on dynamics in the Uholka-Shyrokyy Luh Wilderness.

Weaknesses

Research and monitoring documenting activities and previous extractive uses are currently developed but are struggling with limited funding. This also restricts the ability to share these research and monitoring experiences with the European Wilderness Network. Limited funding is also restraining the implementation of research and monitoring on minimum intervention principles.

There is a lack of scientific outcome (Wilderness arguments) that is available in English.

Recommendations

The park management must look for opportunities for more Wilderness focused research in close cooperation with other protected areas in the European Wilderness Network, research institutions or universities.

Priority: High | Time Frame: 2022

Fig. 77: The research and monitoring team has collected a lot of information regarding the spontaneous developments of the biocenosis in the Wilderness zone.

7.8.3. Criterion 8.3. There is a monitoring plan to document indigenous people livelihoods and their impacts

Reason for the Criterion

In the northern parts of Europe, indigenous people still live a traditional way of life (e.g. subsistence living through hunting, fishing and the grazing of reindeer). This way of life is a rare example of people coexisting with nature, often in places with high Wilderness quality.

This situation creates an opportunity to include these, often large, areas as part of the European Wilderness Network.

Current Situation
The Carpathian Biosphere Reserve has no indigenous people.

7.8.4. Criterion 8.4. There is a plan for cooperation with scientific institutions and universities

Reason for the Criterion

Cooperation between protected areas and scientific institutions and universities is fundamental for successful Wilderness stewardship.

Scientific institutions and universities can bring knowledge and innovative approaches to the stewardship of Wilderness areas. Very often they provide information on the importance of Wilderness and how to better protect it.

Collaboration with scientific institutions or universities can be either of formal or informal nature.

Current Situation

There is a plan for cooperation with scientific institutions and universities.

Findings

There is formal and informal cooperation with scientific institutions and universities.

There is a well-established and ongoing collaboration with both Ukrainian and international (Germany, Switzerland - Swiss federal research institute WSL) scientific institutions and university partners.

Strengths

The management team actively cooperates with national and international research and monitoring partners from various European countries (Germany, Switzerland, Slovakia, etc.)

Weaknesses

There are limited resources to enhance cooperation with scientific institutions and universities to focus on Wilderness.

Recommendations

The park management must develop a plan to intensify collaboration with scientific institutions and universities focusing on Wilderness conservation.	
Priority: Medium	Time Frame: 2020
The park management has to seek possible funding (e.g. Erasmus) to share their experience with the scientific community and the partners of the European Wilderness Network.	
Priority: High	Time Frame: 2020

7.9. Principle 9: International relevance

The importance of Wilderness is finally being recognised in Europe. More people and initiatives are beginning to work to protect and expand Wilderness.

A Wilderness should be internationally recognised by the IUCN, UNESCO, EU as well as other relevant international organisations.

Reason for the Principle

This principle is a link between local efforts to protect Wilderness and global initiatives to protect Wilderness heritage and biodiversity.

7.9.1. Criterion 9.1. The Wilderness is internationally recognised (IUCN, Natura 2000, UNESCO, other certifications)

Reason for the Criterion

International recognition should demonstrate that a Wilderness meets a certain international standard.

According to the IUCN Protected Areas category system, category 1a and 1b (strict nature reserve and wilderness area, respectively), are usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

Current Situation

The Carpathian Biosphere Reserve was established as an IUCN Ia Strictly Protected Area – zapovednik in 1968 and became part of the World Network of Biosphere Reserves of UNESCO in 1992. Since 2007 large parts of the reserve, along with some territories of the Uzh River National Park, were listed as UNESCO World Heritage Sites as part of the Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe

The Uholka-Shyrokyy Luh Wilderness is a model of a well-managed Wilderness area, that can motivate other protected areas to:
- create Wilderness
- enlarge their Wilderness zones
- reduce fragmentation
- improve the quality of Wilderness

Findings

The site assessment confirmed that Uholka-Shyrokyy Luh Wilderness meets the quality standard IUCN category Ia and Ib.

The Carpathian Biosphere Reserve has significant international relevance. The park has several well-known, globally and European, international recognitions, such as IUCN and UNESCO. Uholka-Shyrokyy Luh Wilderness has also a member of the European Wilderness Network since 2017.

Findings

The Uholka-Shyrokyy Luh Wilderness protects 7 117 ha of Wilderness which is identical with the WILD-Forest.
Besides that, 3 WILDRivers – the upper part of the Mala Uholka River (7 km), the Velyka Uholka River (8 km) and the Shyrokyy Luh River (9 km).

Uholka-Shyrokyy Luh Wilderness protects a large, contiguous area of Carpathian beech old-growth forest with several important WILDRivers. The area provides favourable habitats for several threatened species, such as bear, wolf, lynx, red deer, eagles and badgers.

Strengths

The Uholka-Shyrokyy Luh Wilderness is a critical element of the UNESCO World Heritage Sites with an excellent example of old-grow beech forest. The area provides favourable habitats for several threatened species.

There is potential for enlargement of the Uholka-Shyrokyy Luh Wilderness, and to further increase the population of the native Carpathian carnivores such as wolf and bear, and also threatened species such as the salamander and newt.

High-quality habitats, unique beech forests, wild terrain and large areas without any infrastructure or roads provide an excellent starting point to join the European Wilderness Network.

Recommendations

The park management should finalise the nomination process for the European Wilderness Network.
Priority: High Time Frame: 2020

Fig. 78: The Park management finalised the Uholka-Shyrokyy Luh Wilderness nomination process for the European Wilderness Network.

7.9.2. Criterion 9.2. There is a plan to become part of the Natura 2000 network (where relevant and according to the Wilderness objectives)

Reason for the Criterion

Natura 2000 is a network of nature protected areas in the European Union. It is made up of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated respectively under the Habitats and Birds Directives.

Wilderness is not explicitly mentioned in the Natura 2000 legislation but applying a Wilderness approach to the management of Natura2000 sites is compatible with the provisions of the Directives.

Current situation

The Uholka-Shyrokyy Luh Wilderness is part of the Emerald Network with a long-term programme to continue non-intervention management in the Wilderness Zone. The area is currently in the process to become a member of Natura 2000.

Findings

The protected area is part of the Emerald Network with a long-term programme to continue the implementation of non-intervention management in the Wilderness/natural zone.

Strengths

It is an excellent example on how to implement non-intervention management in the Emerald Network.

Weaknesses

There is a lack of resources to further enlarge the Wilderness zone.

Recommendations

The park management should share their experience with non-intervention management in the Emerald Network with the partners of the European Wilderness Network.

Priority: High Time Frame: 2020

7.9.3. Criterion 9.3. Wilderness supports the protection of internationally threatened species

Reason for the Criterion

Wilderness is can be an important type of protected area to guarantee protection of internationally threatened species. Large and contiguous Wilderness creates space and a natural environment for species, particularly during critical periods of their life (e.g. mating and breeding season, raising litters).

Current Situation

The Carpathian Biosphere Reserve is an important part of the Carpathian Wilderness network and plays a crucial role in the protection of internationally threatened species.

Findings

The Carpathian Biosphere Reserve and the Uholka-Shyrokyy Luh Wilderness provide excellent habitats to support the protection of several internationally threatened species (e.g. lynx, bear, wolf).

Strengths

There is a contiguous Wilderness zone with the potential for enlargement. These are excellent conditions to support the protection of internationally threatened species. There is a systematic monitoring and research programme in the Wilderness zone which is implemented by committed staff.

Weaknesses

There is a lack of resources to further enlarge the Wilderness zone. Maintaining the support of the local communities is challenging.

Recommendations

The park management must develop education and marketing activities which focus on Wilderness and the protection of internationally threatened species.

Priority: High Time Frame: 2020

Fig. 79: Uholka Shyrokyy Luh Wilderness provides a good condition to support the protection of internationally threatened species.

8. Findings and Recommendations

Both existing and potential Wilderness were evaluated for this report. The recommendations are divided into three priorities, high, medium and low. In addition a time frame is given for their completion. The intention of this chapter is to assist managers in their strategically planning for the Wilderness.

Implementation of the European Wilderness Quality Standard and Audit System in the Carpathian Biosphere Reserve

The European Wilderness Quality Standard and Audit System and the Carpathian Biosphere Reserve have their own zoning systems. The European Wilderness Quality Standard and Audit System zoning system is based on the definition of European Wilderness and Wild Areas. The Carpathian Biosphere Reserve zoning system is based on Ukrainian legislation.

Table 6: Compatibility of the European Wilderness Quality Standard and Audit System and the Carpathian Biosphere Reserve zoning systems, EWQA = European Wilderness Quality Standard and Audit System

	EWQA	Carpathian Biosphere Reserve (CBR) and Uholka-Shyrokyy Luh Massif	Compatibility between EWQA and Uholka-Shyrokyy Luh Massif
Widerness[1)]	Wilderness zone[2)]	Core zone	Compatible. CBR Core zone is identical with EWQA Wilderness zone
	Restoration zone[3)]	–	There is currently no Restoration zone in Uholka-Shyrokyy Luh Wilderness
	Transition zone[4)]	Zone of regulated protection and buffer zone	Compatible. CBR zone of regulated reservation regime and buffer zone are identical with EWQA Transitional zone
		Zone of anthropogenic landscape	

[1] *Wilderness areas can be categorised into three 'zones,' with a core area surrounded by a restoration/buffer area of minimal activities, which in turn is surrounded by a Transition zone (see Appendix II). It is considered that this threefold structure offers the best protection of key Wilderness principles whilst allowing potential for future expansion and flexible interaction with other land uses. (Definition of European Wilderness, 2013)*

[2] *The Wilderness/core zone would have the 'highest' quality of Wilderness, with minimal impact of human activity or infrastructure and a dominance of natural processes. Where feasible, outward expansion would occur over time through restoration/rewilding into the Restoration/buffer zone – particularly if the core is not initially large enough to allow complete ecological processes. (Definition of European Wilderness, 2013)*

[3] *The Restoration/buffer zone, with a relatively low impact of human presence, surrounds and protects the core zone. Emphasis here should be on restoration/rewilding of natural habitats and processes, with phasing out of built structures and high impact activities within 10 years. Where feasible, there should be plans for it to be incorporated into the core zone and expand outwards over time into the Transition zone. (Definition of European Wilderness, 2013)*

[4] *The Transition zone is an area where a range of human activities is permitted, but with management controls preventing development of major infrastructure, wind farms or large scale clear felling, that might significantly alter the landscape or natural environment. Sustainable harvesting of timber, animals (hunting & fishing) and plants (berries, fruits, mushrooms), together with organic agriculture is possible. (Definition of European Wilderness, 2013)*

8.1. Principle 1: Wilderness zoning and size

Wilderness has a defined boundary and should have three zones: The Wilderness zone (where there is no human intervention and natural dynamic processes govern), the Restoration zone (where restoration and/or expansion is undertaken) and the Transition zone (where further expansion of the Wilderness is planned). If this is not the case, additional measures to ensure the protection and functioning of the Wilderness must be implemented. The size of the Wilderness zone depends on the predominant habitat type.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 1.1. The Wilderness has three zones: The Wilderness zone, the Restoration zone and the Transition zone				
The park management must develop a concept to create a Restoration zone (including proposal and map).		√		2022
The Park management must improve the communication of their Wilderness zonation.			√	2022
Criterion 1.2. The Wilderness zone has clearly defined boundaries				
The park management must develop detailed and continuously update zoning maps of Uholka-Shyrokyy Luh Wilderness.			√	2021
The park management must improve the boundaries of the Wilderness and the Wilderness zone in the field.			√	2022
The park management must incorporate the boundaries of the Wilderness and the Wilderness zone in the existing information media (information panels, leaflets, brochures, maps, etc.) to inform visitors and tourists. The boundaries must be clear in the field, in particular in areas with high visitor concentration.			√	2024
Criterion 1.3. The minimum size of the Wilderness zone depends on the predominant habitat type. Wetlands typically have a minimum Wilderness zone of 500-1 000 ha while other habitats have a Wilderness zone between 2 000-10 000 ha				
The park management must identify potential areas for an enlargement of the Wilderness and the Wilderness zone.			√	2021
The park management must develop a long-term plan to enlarge the current Uholka-Shyrokyy Luh Wilderness zone. This proposal includes a detailed map of the existing Wilderness with a Restoration zone and a Transition zone.			√	2021
The park management must seek funding and resources to enlarge the Uholka-Shyrokyy Luh Wilderness.			√	2021

8.2. Principle 2: Natural processes and biodiversity

Wilderness must have a Wilderness zone, where natural dynamic open ended processes can take place without human intervention, in order to contribute to the conservation of regionally threatened species and to enable the Wilderness to become a leading example of undisturbed habitats.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 2.1. The Wilderness zone has undisturbed natural dynamic processes				
The park management must list and map examples of natural dynamic processes in the Wilderness zone. The list and maps should be updated regularly.			√	2022
The park management must develop a comprehensive plan for the Wilderness zone to maintain natural dynamics processes.			√	2022
The park management must continue to monitor examples of natural dynamic processes and collect arguments for their importance to protect biodiversity.			√	2022
The park management must continue to communicate the importance of Wilderness stewardship, the protection of natural dynamic processes and biodiversity in the Wilderness zone to the local stakeholders and visitors as well as the partners of the European Wilderness Network.			√	2022
Criterion 2.2. The Wilderness zone contributes to the support of Wilderness-indicator species				
The park management must provide information on Wilderness-indicator species as well as endemic, red-listed, vulnerable and rare species, which occur in the Wilderness and particularly in the Wilderness zone.			√	2022
The park management must collect information on native species in the Wilderness and Wilderness zone that have decreased or become extinct.			√	2022
The park management must monitor large herbivores in the Wilderness and especially in the Wilderness zone.			√	2021
The park management must monitor large carnivores, especially bear, lynx, wolf and golden jackal in the Wilderness and especially in the Wilderness zone.			√	2022
The park management must continue with public education programs focusing on Wilderness-indicator species.			√	2022
The park management must develop a communication plan explaining the importance of Wilderness-indicator species in the Wilderness and particularly in the Wilderness zone to stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.		√		2022
Criterion 2.3. The Wilderness zone contains examples of undisturbed natural dynamic processes and ecosystems				
The park management must continue monitoring undisturbed natural dynamic ecosystems.			√	2022

The park management must continue to develop an information communication strategy informing the local, national and international audience on the importance of undisturbed ecosystems.			√	2022
Criterion 2.4. The Wilderness has a plan to restore natural dynamic processes in the restoration zone				
The park management must continue restoring natural dynamic processes in the Restoration zone.			√	2022
The park management must develop an information communication strategy aimed at the local, national and international audience focusing on the necessity of continuing restoring natural dynamic processes in the Restoration zone.			√	2022

8.3. Principle 3: Wilderness Stewardship

Wilderness stewardship contains several Wilderness concepts like a biodiversity management plan, a support plan for natural dynamic processes, landscape management and the training of the Wilderness stewardship team. In addition, this principle covers the impact of tourism.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 3.1. The Wilderness is protected by law in accordance with national legislative frameworks for an indefinite period of time				
The park management must develop and implement a long-term plan to guarantee the legal protection of the Wilderness zone (e.g. specific Wilderness focused legislation, develop a concept of long-term agreement/lease with the Ukrainian State Forest Service).			√	2022
The park management must develop a proposal to transfer or to purchase the using rights of Wilderness land (Wilderness zone or potential restoration zone) that is currently managed and owned by the State Forestry for an indefinite period of time, to the competence of the Administration of the Carpathian Biosphere Reserve.			√	2022
The park management must continue to implement a long-term Wilderness communication strategy with a focus to guarantee the legal protection of the Uholka-Shyrokyy Luh Wilderness.			√	2022
Criterion 3.2. The Wilderness has a detailed Wilderness Stewardship Plan of at least 10 years				
The park management must finalise a comprehensive Wilderness Stewardship Plan based on non-intervention management principles for the Wilderness and especially for the Wilderness zone.			√	2024
The Wilderness stewardship plan must be a separate document or chapter of the overall management plan and must include an English summary.		√		2024

The Wilderness stewardship plan should follow the template published on the EWS Website.		√		2024
The park management must develop an information communication strategy and must share the summary of the Wilderness Stewardship Plan with the stakeholders and the partners of the European Wilderness Network.		√		2024
Criterion 3.3. The Wilderness has a sufficiently large and trained full time management team				
The park management must develop a Wilderness-focused training plan based on Wilderness stewardship best practice examples, for the management team and particularly for the rangers in Uholka-Shyrokyy Luh Wilderness.			√	2023
The park management should consider opportunities to invite foreign experts on the subject of Wilderness stewardship and interpretation.		√		2020

8.4. Principle 4: Wilderness Restoration

Wilderness restoration is an intentional activity that initiates or accelerates the recovery of a damaged ecosystem that has Wilderness potential. Wilderness restoration includes a wide range of activities, such as restoration of disturbed areas and the reintroduction of native species. These activities should be implemented once and not continuously.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 4.1. The Wilderness has a Wilderness restoration plan to enlarge and improve the Wilderness zone				
The park management must continue with the implementation of a long-term vision to build up connecting corridors with Wilderness in the vicinity.			√	2022
The park management must develop an information communication strategy explaining the need of Wilderness restoration and enlargement plans to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.			√	2022
Criterion 4.2. The Wilderness zone should be enlarged with the help of Wilderness restoration measures in the Restoration zone				
The park management must develop a Wilderness restoration plan to restore natural dynamic processes in the Restoration zone with the help of Wilderness restoration measures.			√	2022
Park management must develop an information communication strategy explaining the need of Wilderness restoration (strategy, plans) to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.			√	2022

8.5. Principle 5: Wilderness extractive and intrusive uses

The European Wilderness definition stipulates that Wilderness is an area without intrusive or extractive uses.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 5.1. The Wilderness zone has no extractive or commercial uses				
The park management must strictly enforce the rule of no extractive or commercial uses in the Uholka-Shyrokyy Luh Wilderness zone.			√	2020
The park management must monitor possible breaches of this principle.			√	2020
The park management must develop a concept and action plan to reduce the demand of locals for resources of Uholka-Shyrokyy Luh Wilderness (increase the size of the transition zone to satisfy the needs of locals for fire wood, support development of small grant fund to fund the development of alternative energy supplies e.g. solar panels and biomass).			√	2021
The park management must continue education and interpretation activities which focus on the impact of extractive uses (i.e., grazing, forestry and hunting) or commercial uses (i.e., guiding visitors, collecting berries) to enable spontaneous natural dynamic processes in the Wilderness zone.		√		2020
Criterion 5.2. The Wilderness zone has no forestry operation				
The park management must continue to prohibit all forestry operations in the Wilderness zone, including sanitary logging.			√	2020
The park management must develop and implement an information communication strategy explaining the reasons, consequences and results of stopping all forestry operations to enable natural dynamic processes to function freely in the Wilderness zone. This strategy has to be targeted at stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.			√	2021
Criterion 5.3. The Wilderness zone has no hunting and/or game management				
The park management must monitor the impact of poaching in the Uholka-Shyrokyy Luh Wilderness.			√	2020
The park management must develop an information communication strategy explaining the importance of having a hunting free zone within the Wilderness zone to stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.			√	2020
The park management must continue to emphasise the communication of the importance of having carnivores like bear, wolves, lynx and golden jackal in the Wilderness zone.			√	2020

Criterion 5.4. The Wilderness zone has no extractive fishing or management of fish populations				
The park management must continue to monitor and control extractive illegal fishing activities.			√	2020
The park management must develop an interpretation programme with a focus on native fish species.		√		2021
Criterion 5.5. The Wilderness has a fish and game management plan for the Restoration and Transition zones				
The park management must continue with the monitoring and controlling of extractive fishing activities and game management in the surroundings as well as their impact on the Wilderness zone.			√	2020
Criterion 5.6. The Wilderness zone has no active mining				
n/a				
Criterion 5.7. The Wilderness zone has abandoned old mining sites				
n/a				
Criterion 5.8. Park management has implemented a restoration plan for previous mining sites in the Restoration zone				
n/a				
Criterion 5.9. The Wilderness zone has no domestic livestock grazing				
The park management must continue to implement its communication strategy concerning the importance of having no livestock grazing in the Wilderness zone.		√		2020
The park management must focus on patrolling activities in the Transition zone e.g. the corridor between Velyka Uholka and Shyrokyy Luh.			√	2020
Criterion 5.10. The Wilderness zone has no agricultural activities				
n/a				
Criterion 5.11. The Wilderness zone has no deadwood collection				
n/a				
Criterion 5.12. The Wilderness zone has no commercial harvesting of berries, nuts or mushrooms				
The park management must develop and implement a strategy to minimise negative impacts of grazing and berry picking in the alpine zone at the northern boundary of Uholka-Shyrokyy Luh Wilderness (e.g. road erosion, illegal shelters, garbage).			√	2021
The park management must continue to monitor and control the collection of blueberries in the alpine zone above the Wilderness.		√		2020
Criterion 5.13. The Wilderness zone has no commercial collection of minerals				
n/a				

Criterion 5.14. The Wilderness zone has no commercial filmmaking				
The park management must develop a clear strategy for commercial filmmaking in Uholka-Shyrokyy Luh Wilderness.		√		2023

8.6. Principle 6: Wilderness Disturbances

This principle focuses on the removal of permanent and temporary infrastructure, creating well-planned tourism access with minimal impact as well as regulating and limiting road access to the Wilderness, in order to reduce the human impact in the Wilderness zone.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 6.1. The Wilderness zone has no permanent infrastructure				
The park management must develop and update maps and inventories of the permanent infrastructure e.g. permanent abandoned old forest houses, shelter/ bivouac, the network of old abandoned gravel roads and of the patrol trails.			√	2021
The park management must monitor the permanent infrastructure e.g. permanent abandoned old forest houses, shelter/ bivouac, chapel, the network of old abandoned gravel roads and of the patrol trails.			√	2020
Criterion 6.2. Permanent infrastructures in the Restoration zone are removed according to the restoration plan, unless the removal is detrimental to the quality of the Restoration zone				
n/a				
Criterion 6.3. There is a management plan on how to deal with temporary structures (e.g. tents, picnic tables, housing containers, trailers, etc.) in the Restoration zone and Transition zone				
The park management must develop a strategy and management plan on how to deal with temporary structures in the Wilderness zone and the Transition zone.		√		2021
The park management must develop a map and inventory of all existing temporary structures in the Uholka-Shyrokyy Luh Wilderness.		√		2021
The park management must continue to monitor the usage of the existing temporary structures in the Uholka-Shyrokyy Luh Wilderness.		√		2020
Criteria 6.4. The Wilderness zone has no permanent settlements.				
n/a				
Criterion 6.5. There is a management plan to deal with inherited settlements in the Wilderness zone				
n/a				

Criterion 6.6. There is a management plan for the Wilderness to deal with inherited indigenous gathering sites (e.g. traditional reindeer herding sites in Nordic countries)				
n/a				
Criterion 6.7. There is a management plan to deal with abandoned archaeological sites in the Wilderness zone				
n/a				
Criterion 6.8. There is no motorised transport in the Wilderness				
The park management must monitor the frequency and impact of unauthorised use of the old gravel forest roads in the Wilderness.			√	2020
The park management must develop awareness activities and a protection regime for amphibians during their reproduction seasons (newt in the Shyrokyy Luh).			√	2020
The park management should monitor the intensity of the use of the gravel road along the east and north boundaries.	√			2023
Criterion 6.9. There is free access by foot to the Wilderness				
The park management must avoid the installation of new trails in the Wilderness zone and not include a cave visit in the existing trail network.			√	2020
The park management must continue the monitoring of visitor impact along the official trails in Mala and Velyka Uholka.			√	2020
Criterion 6.10. The Wilderness zone has no noise pollution				
The park management must develop a random monitoring scheme for noise pollution in the Wilderness zone.	√			2022
Criterion 6.11. The Wilderness zone has no light pollution				
The park management must develop a random monitoring scheme for light pollution in Wilderness zone.	√			2022
Criterion 6.12. The Wilderness zone has no visual distractions on the horizon				
The park management must carry out a visual distraction assessment with a focus on identifying visual disturbance in the Wilderness zone.	√			2023
Criterion 6.13. The Wilderness has no garbage pollution				
The park management, together with the local partners, must monitor garbage pollution in the Uholka-Shyrokyy Luh Wilderness.			√	2020
The park management must organise systematical garbage cleanings with rangers and local people (particularly at the entry to Mala and Velyka Uholka).			√	2020
The park management, together with the local partners, must develop and implement training programmes for employees, locals and visitors with a focus on garbage management in the Uholka-Shyrokyy Luh Wilderness.			√	2021

Criterion 6.14. There are no recreational fire pits in the Wilderness zone				
The park management must develop a strategy and plan on how to deal with recreational fire pits in the Uholka-Shyrokyy Luh Wilderness.			√	2021
The park management must monitor the number and condition of recreational fire pits in the Uholka-Shyrokyy Luh Wilderness.			√	2020
The park management must organise rangers, together with local people, to maintain recreational fire pits in the Uholka-Shyrokyy Luh Wilderness.			√	2020
Criterion 6.15. There are rules for the use of horses in the Wilderness zone				
n/a				
Criterion 6.16. The Wilderness zone has no fencing				
n/a				
Criterion 6.17. There are rules about dogs in the Wilderness zone				
The park management must continue with the strategy to exclude dogs and other pets from the Wilderness zone.			√	2020
Criterion 6.18. The Wilderness has a minimal impact visitor and recreational use strategy				
The park management must continue the maintenance of tourist trails as well as the cleaning of the touristic areas.			√	2021
The park management must develop a concept to implement "Leave No Trace" for Uholka-Shyrokyy Luh Wilderness.			√	2021
The park management must develop a comprehensive communication concept for visitors of Uholka-Shyrokyy Luh Wilderness. This concept should include: maps, leaflets, brochures, stickers, pin.			√	2021
Criterion 6.19. The Wilderness has an integrated visitor and recreation strategy to support the Wilderness concept				
The park management must develop an updated integrated visitor and recreation strategy for the Uholka-Shyrokyy Luh Wilderness, which includes training and communication to support the idea of Wilderness.			√	2022
The park management must involve a wide spectrum of local stakeholders (including local foresters and shepherds) to update the integrated visitor and recreation strategy for the Uholka-Shyrokyy Luh Wilderness.			√	2022
The park management must update the rules for the Uholka-Shyrokyy Luh Wilderness visitor use. In general, groups should be limited to six people and should always be accompanied by a ranger.			√	2021
The park management must continuously monitor the visitor impact on Uholka-Shyrokyy Luh Wilderness in general and particularly in the Wilderness zone.			√	2021

The park management must develop an information communication strategy to explain the Wilderness tourism access plan to stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.			√	2021
The park management must concentrate the majority of visitor activities in the Transition zone.		√		2020

8.7. Principle 7: Control strategies for fire, disease, invasive species, and other dynamic natural processes

Ecological disturbances are one of the most profound aspects of Wilderness. Natural dynamic processes, like windstorms, are important sculptors of landscape and habitats. However, they are often considered problematic and undesirable by humans.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 7.1. There is a fire management plan for the Wilderness and the Wilderness zone. Fire must not be suppressed in the Wilderness zone				
The park management continues the research on fire history of the Uholka-Shyrokyy Luh Wilderness.			√	2021
The park management must continue the monitoring of the frequency of fire in the Uholka-Shyrokyy Luh Wilderness.			√	2021
The park management should limit fire control measures to the Transition zone in case they are necessary and only if these measures do not cause long-term impacts on the Wilderness zone.		√		2020
The park management must develop a fire management stewardship plan for the Uholka-Shyrokyy Luh Wilderness.	√			2022
The park management must develop education and interpretation activities explaining the role of fire in ecosystem dynamics and consequently the role of fire management and a let-it-burn policy, with a focus on Wilderness managers, the public and visitors.			√	2021
Criterion 7.2. The Wilderness has a disease control plan				
The park management must continue research on the history and dynamics of spontaneous disease outbreaks.			√	2021
The park management must develop a disease outbreak stewardship plan for the Uholka-Shyrokyy Luh Wilderness.	√			2022
The park management must develop education and interpretation activities explaining the importance and the role of a let-it-fly policy to the stakeholders, visitors and the general public.			√	2021
The park management should limit disease control measures to the Transition zone in case they are necessary and only if these measures do not cause long-term impacts on the Wilderness zone.		√		2023

Criterion 7.3. A neophyte and invasive species management plan has been developed for the Wilderness				
The park management must continue to research and monitor neophyte and invasive species in order to improve their knowledge on invasive alien species that could potentially threaten the Wilderness zone.		√		2020
The park management must develop an invasive species stewardship plan to prevent incursion of invasive species into the Wilderness.		√		2023
The park management must develop education and interpretation activities focusing on neophyte and invasive species.		√		2021
The park management must limit all neophyte and invasive alien species control activities to the Transition zone.		√		2020
Criterion 7.4. There is a plan for natural dynamic processes				
The park management must continue to research and monitor natural dynamic processes, such as wind storms, climatic extremes, avalanches and rock falls.			√	2020
The park management must develop a natural processes stewardship plan for the Uholka-Shyrokyy Luh Wilderness.			√	2022
The park management must develop an information communication strategy explaining the role of natural dynamic processes in the Wilderness zone to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.			√	2021
Criterion 7.5. The Wilderness zone is impacted by permafrost				
n/a				

8.8. Principle 8: Wilderness research and monitoring

Wilderness offers opportunities to study the unique attributes of nature and natural processes. High quality Wilderness research and monitoring allows park managers to make appropriate decisions regarding the Wilderness. Research and monitoring activities should never be invasive in their character.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 8.1. There is a Wilderness monitoring and research strategy.				
The park management should continue to implement a long-term Wilderness monitoring and research strategy including topics such as forest ecosystems, herbivores and visitor management.			√	2020
The park management must develop a research and monitoring line focusing on collecting data on Wilderness restoration.		√		2022
The park management must improve its coordination with other Wilderness areas (e.g. unify their GIS systems and research methodology among partners focusing on Wilderness research).		√		2021
The park management must monitor the impact of research and monitoring activities, particularly in the Wilderness zone.		√		2022
The park management should provide an annual summary (also in English) of important outcomes of its Wilderness research and monitoring programme to the partners of the European Wilderness Network.			√	2022
The park management must invest in non-invasive monitoring methods and minimise all visible and ecological impacts of research and monitoring activities within the Wilderness zone.			√	2020
The park management must develop an information communication strategy explaining the importance of a Wilderness monitoring and researching strategy to the stakeholders, visitors and the general public as well as the partners of the European Wilderness Network.			√	2020
Criterion 8.2. There is a monitoring system which documents activities and extractive uses in the protected area				
The park management must look for opportunities for more Wilderness focused research in close cooperation with other protected areas in the European Wilderness Network, research institutions or universities.			√	2022
Criterion 8.3. There is a monitoring plan to document indigenous people livelihoods and their impacts				
The park management must develop a plan to intensify collaboration with scientific institutions and universities focusing on Wilderness conservation.		√		2020

The park management has to seek possible funding (e.g. Erasmus) to share their experience with the scientific community and the partners of the European Wilderness Network.			√	2020

8.9. Principle 9: International relevance

The importance of Wilderness is finally being recognised in Europe. More people and initiatives are beginning to work to protect and expand Wilderness. A Wilderness should be internationally recognised by the IUCN, UNESCO, EU as well as other relevant international organisations.

Recommendations	Priority			Time
	Low	Medium	High	
Criterion 9.1. The Wilderness is internationally recognised (IUCN, Natura 2000, UNESCO, other certifications).				
The park management should finalise the nomination process for the European Wilderness Network.			√	2020
Criterion 9.2. There is a plan to become part of the Natura 2000 network (where relevant and according to the Wilderness objectives)				
The park management should share their experience with non-intervention management in the Emerald Network with the partners of the European Wilderness Network.			√	2020
Criterion 9.3. Wilderness supports the protection of internationally threatened species				
The park management must develop education and marketing activities which focus on Wilderness and the protection of internationally threatened species.			√	2020

9. Wilderness Awarding

9.1. The History of cooperation between the Carpathian Biosphere Reserve and the European Wilderness Society

The cooperation between the Carpathian Biosphere Reserve and the European Wilderness Society dates back to 2015, when the decision was made to formally protect Wilderness in the Carpathian Biosphere Reserve. Representatives of the Carpathian Biosphere Reserve attended several European meetings, which focused on Wilderness conservation. On behalf of the European Wilderness Society, Vlado Vancura, Director of Wilderness Development, and his team visited the potential Wilderness several times (2015, 2016, and 2017).

The top management of the Carpathian Biosphere Reserve was interested to join the European Wilderness Network in order to improve their management effectiveness and the international recognition of Uholka-Shyrokyy Luh Wilderness. Furthermore, the management expressed interest in creating a model for other protected areas in Ukraine with Wilderness potential.

Fig. 80: During this meeting the decision was made to formally protect Wilderness in the Carpathian Biosphere Reserve. The Uholka-Shyrokyy Luh massif was selected as a priority.

9.2. International Audit and Awarding Process

In 2015, 2016 and 2017, an international audit team of the European Wilderness Society visited the Uholka-Shyrokyy Luh Wilderness for 14 days to carry out the site assessment according to the Wilderness Quality Standard. This field assessment included several overnight stays in the area. The European Wilderness Society team verified 7 117 ha of the Uholka-Shyrokyy Luh Wilderness, which was awarded a Platinum Wilderness Certificate. The Uholka-Shyrokyy Luh Wilderness joined the European Wilderness Network in 2017.

The European Wilderness Society will continue to work with Uholka-Shyrokyy Luh Wilderness in an effort to enlarge the Wilderness and improve the Wilderness stewardship effectiveness as well as to support the other four Wilderness massifs in the Carpathian Biosphere Reserve to join the European Wilderness Network.

Fig. 81: The Uholka-Shyrokyy Luh Wilderness joined the European Wilderness Network in autumn 2017.

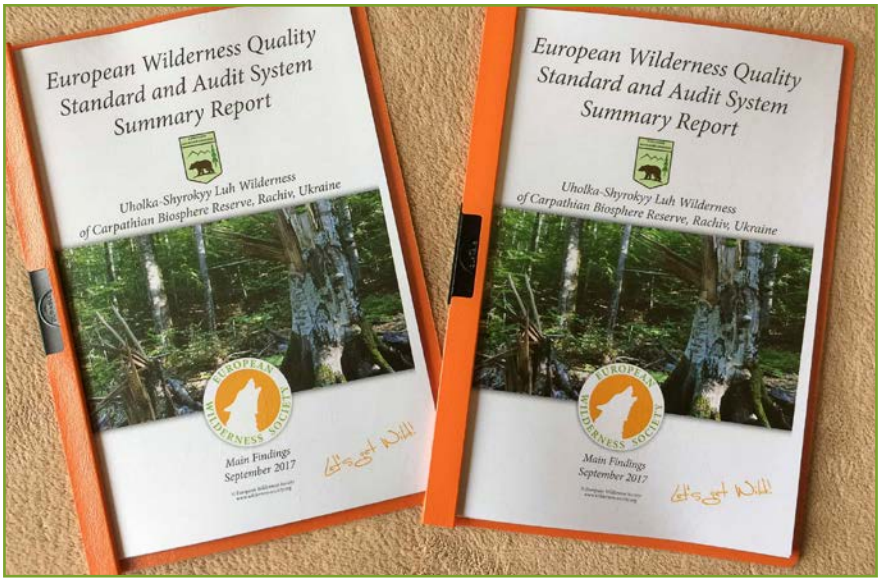
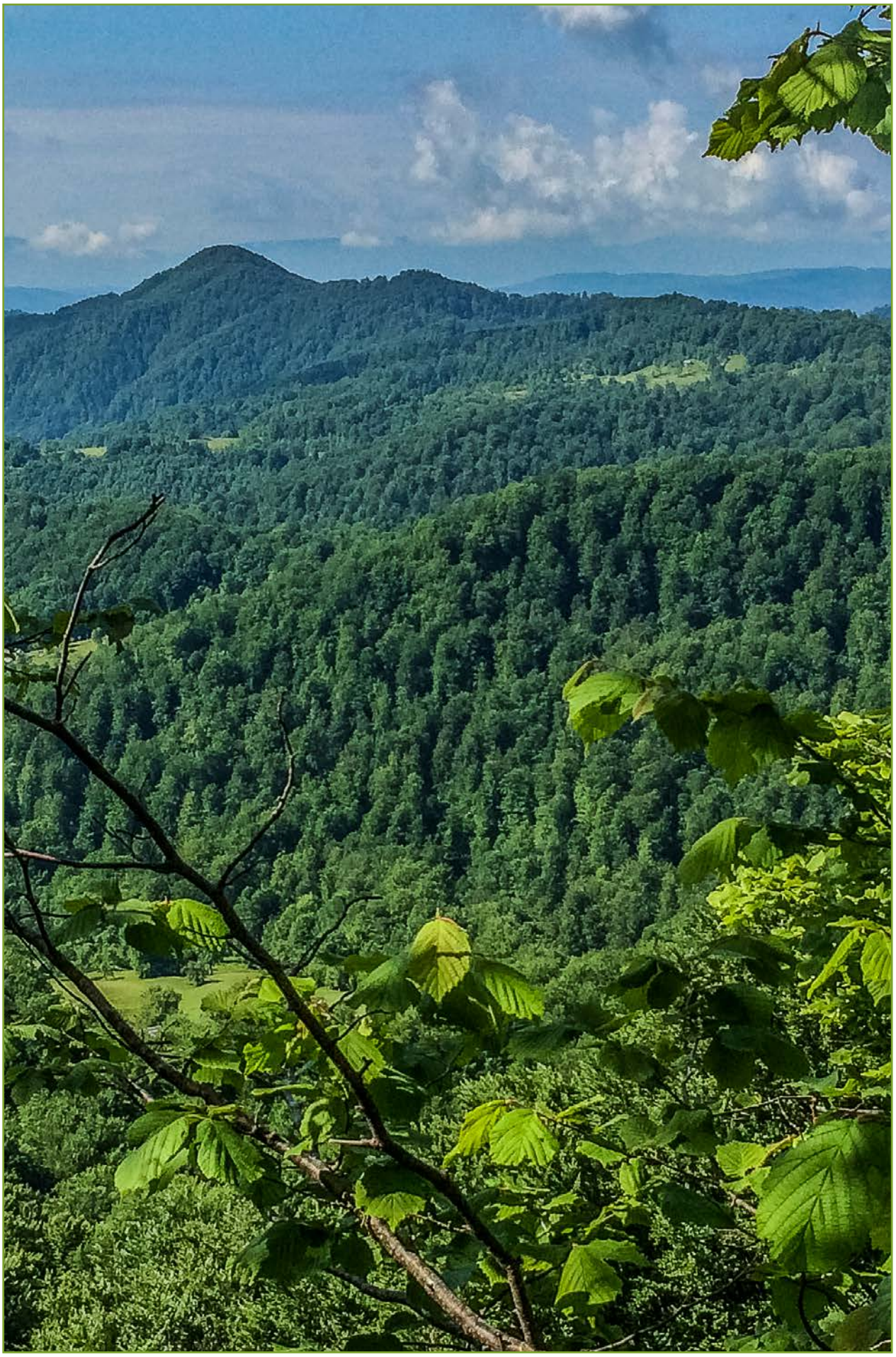


Fig. 82: In September 2017 the Uholka-Shyrokyy Luh Wilderness Quick Audit Report was finished.

Fig. 83: The European Wilderness Society Platinum Diploma was awarded in October 2017.



10. Monitoring and Evaluation

After the international audit and verification, monitoring is done for a period of 10 years. This is the regular process of collecting and analysing data in order to make decisions and track the progress toward reaching the objectives of a particular Wilderness.

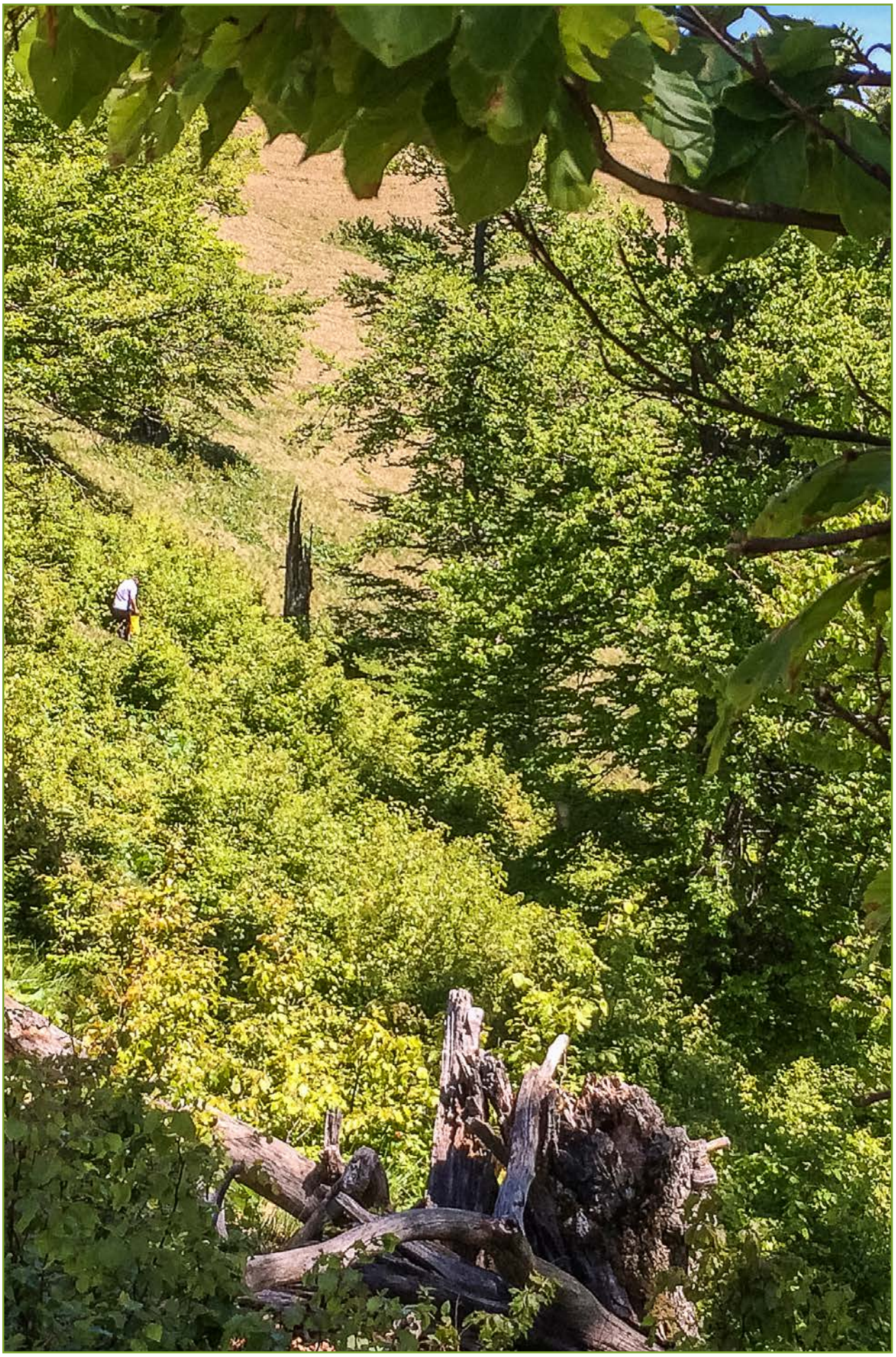
The monitoring focuses on processes, such as when and where recommended activities are implemented. In addition, the data from monitoring can also be applied to other Wilderness sites in Ukraine and throughout Europe.

Evaluation is the systematic assessment of improvement activities that have been recommended by the European Wilderness Society verification team. The evaluation focuses on expected and achieved accomplishments, examination of the results (i.e. inputs, activities, outputs, outcomes and impacts), processes, contextual factors and causalities in order to understand the achievements or the lack of achievements. Evaluation aims to determine the relevance, impact, effectiveness, efficiency and sustainability of prospective interventions and the contributions of these intervention to the overall results.

The evaluation provides evidence-based information that is credible, reliable and useful. The findings, recommendations and lessons of an evaluation are used to support future decision making regarding Wilderness management.

Table 7: Monitoring Program for Uholka-Shyrokyy Luh Wilderness

Year	Activity
2016 - 2017	Site assessment and Wilderness certification
2018	Delivery of verification report
2019-2027	Random site monitoring and assessments. Collecting and analysing data to track progress toward reaching objectives of Wilderness management.
2027	Site assessment, delivery of verification report and awarding a new Wilderness certificate valid for 10 years.



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12. List of figures

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13. List of tables

European Wilderness Quality Standard Audit

European Wilderness Society

Registration number / ZVR Zahl: 305471009
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